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DOCTOR OF PHILOSOPHY

**What influences prescribing in General Practice?  
an ethnographic exploration**

Grant, Aileen Mairi

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DOCTOR OF PHILOSOPHY

# What influences prescribing in General Practice?

*an ethnographic exploration*

Aileen Mairi Grant

2010

University of Dundee

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WHAT INFLUENCES PRESCRIBING IN  
GENERAL PRACTICE? AN ETHNOGRAPHIC  
EXPLORATION

A dissertation presented for the degree of Doctorate of  
Philosophy at the University of Dundee

by

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## PUBLICATIONS & PRESENTATIONS ARISING FROM THIS WORK

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‘What aspects of culture influence prescribing in primary care?’ (Oral) Society for Academic Primary Care, St Andrews, Scotland. 8<sup>th</sup> July 2009

‘The coffee room: An essential part of family practice prescribing’ (Oral) Qualitative Health Research Conference, Vancouver, Canada. 4<sup>th</sup> October 2009

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## DECLARATION

I declare that this thesis has been composed by myself and that the research it describes has been done by me. This thesis has not been accepted in any previous application for a degree. All quotations have been distinguished by quotation marks and the sources of information clearly acknowledged.

Signature \_\_\_\_\_

Date \_\_\_\_\_

Aileen Mairi Grant

I certify that Aileen Mairi Grant has completed the equivalent of nine terms of experimental research and that she has fulfilled the conditions of the relevant Ordinance and Regulations of the University of Dundee, so that she is qualified to submit this thesis in application for the degree of Doctor of Philosophy

Signature \_\_\_\_\_

Date \_\_\_\_\_

Dr Jon Dowell

## ABSTRACT

### **Introduction**

Prescribing accounts for 11% of the total NHS budget. In the UK, there is an aging population who receive nearly half of all prescriptions, with the increasing age of the population, the prevalence of long-term conditions, cost and complexity of prescribing is likely to rise. Prescribing is influenced by numerous factors such as new drugs; aging populations; polypharmacy; and increased concern about adverse reactions. Although numerous initiatives are targeted at general practitioners to encourage application of research evidence the significant variation in prescribing quality and cost is difficult to explain. Previous studies have explored the influences of type of drug, focused clinical area, guidelines and the doctor/patient relationship. No study was found which has explored the details of the prescribing process using the ethnographic approach.

### **Methods**

This ethnographic study of three different general practices, involved participant observation, documentary review and semi-structured interviews. Analysis was an iterative process conducted in Atlas.ti by borrowing on grounded theory techniques and interpretative description. Practices were selected using prescribing quality indicators developed by Audit Scotland via PRISMS (Prescribing Information System for Scotland), which collects prescribing data for all practices in Scotland. Two practices which were ranked highly and one practice which was ranked low were observed.

### **Results**

Practices made two different kinds of prescribing decision; macro and micro. Macro prescribing decisions are strategic, influenced by EBM and practice data, and consider the 'average patient'. Micro prescribing decisions are made with an individual patient, considering their unique biology, context and perspectives.

Practice pharmacists were instrumental in leading prescribing quality improvement in the larger practices and had an important role interpreting practice level data in light of the changing evidence. In the high ranking practices these changes were formulated into macro prescribing policy to rationalise and standardise their prescribing. The lower ranking practice suggested practices had to value collective decision-making and consistency in their prescribing behaviour to formulate a macro prescribing policy. Consistency in prescribing behaviour was facilitated by effective communication, which was important for shared values and practice identity. Practice identity influenced practice values, communication and organisation thus had a direct impact on their macro prescribing policy formulation and implementation.

GPs used mindlines when making prescribing decisions at the micro prescribing level. GPs did not refer to explicit sources when seeking information but used personal prescribing formularies. These mindlines were iteratively developed from social networks with colleagues, secondary care and patient specific information from the practice pharmacist and from past experience. Through effective communication with colleagues these mindlines were shared.

## **Conclusion**

Practices made two different kinds of prescribing decision; macro and micro. Both types of prescribing were dependent on effective communication channels, organisation, values and



practice identity, illustrating the importance of communication for shared values, collective behaviour and prescribing decision-making.

## *Chapter 1*

### INTRODUCTION

This PhD investigates the various influences on GP prescribing using ethnographic methods to explore in-depth and better understand the influences GPs recognise and don't recognise when making prescribing decisions. The initial idea for this study emerged from discussions between the researcher and her first supervisor (JD). The researcher had an interest and some experience of prescribing research and qualitative research methods and was keen to expand her research skills into ethnography. Dr Jon Dowell was aware, despite much research, it was not clear 'what influences prescribing in general practice' and felt ethnographic methods could provide a unique insight. As much of the research has been quantitative the intention was by studying treatment decisions in context would allow the researcher to understand and appreciate the complexity of the prescribing decision-making process.

Prescribing is the most common treatment method in the NHS (Barber *et al.*, 2003). Prescribing accounts for 11% of the total cost of the NHS budget, with 825.8 million prescriptions dispensed in primary care alone each year (The Association of the British Pharmaceutical Society, 2007). In the U.K we have an aging population; they receive nearly half of all prescriptions (Department of Health, 2000), which is likely to increase with the rise in long-term conditions and poly-pharmacy, illustrating the importance of research into prescribing.

The importance of prescribing has ensured it has been subject to much research; in clinical areas; cholesterol (Bertoni *et al.*, 2009), sore throats (Butler *et al.*, 1998), hypertension (Cranney and Walley, 1996, Montgomery *et al.*, 2000, Carter *et al.*, 2009), asthma and angina (Eccles *et al.*, 2002), (Greenfield *et al.*, 2005), depression (Kendrick *et al.*, 2005); in types of

drugs prescribed; non-steroidal anti-inflammatory drugs (Bloor and Maynard, 1996), antibiotics (Walker *et al.*, 2001, Dowell *et al.*, 2001, Lipman and Price, 2000), lipid lowering agents (Evans *et al.*, 1995), antidepressants (Hyde *et al.*, 2005), statins (Kedward and Dakin, 2003), new drugs (Jacoby *et al.*, 2003, Jones *et al.*, 2001b, Prosser *et al.*, 2003, Prosser and Walley, 2003); in long-term prescribing (Cantrill, 2000, Cantrill *et al.*, 2000, Harris and Dajda, 1996); in prescribing systems (Barber, 2004, Barber *et al.*, 2003, Avery *et al.*, 2007); and the influence of patients (Cheraghi-Sohi *et al.*, 2008, Dowell *et al.*, 1996, Stevenson *et al.*, 2000a, Virji *et al.*, 1991, Britten *et al.*, 2000, Britten and Ukoumunne, 1997, Bradley, 1992b, Carlsen and Norheim, 2005). This list is not exhaustive but illustrates there is extensive topic specific prescribing literature.

It is widely accepted research evidence alone is not adequate to guide action (Haynes *et al.*, 2002). It has become clear that reliance on passive dissemination of information to keep health professionals up-to-date is ineffective when around two million articles on medical issues are published annually (Mulrow, 1994). There has been substantial investment in technologies and interventions to improve prescribing and bring it in line with evidence based medicine (Grimshaw *et al.*, 2004, Grol and Grimshaw, 2003). Much of this extensive literature has been systematically reviewed; audit and feedback (Jamtvedt *et al.*, 2006), educational meetings (Forsetlund *et al.*, 2009), educational outreach visits (O'Brien *et al.*, 2009), outreach pharmacists (Beney *et al.*, 2009) and the reviews have concluded when these interventions are effective, the effects are generally small to moderate. So when it comes to changing professional practice there appears to be 'no magic bullets' (Oxman *et al.*, 1995) and multiple factors are involved in GPs decisions to change their prescribing habits (Armstrong *et al.*, 1996). It is recognised multi-faceted interventions are more likely to improve quality prescribing (Bertoni *et al.*, 2009, Prosser *et al.*, 2003), yet we still know little about why.

Despite these efforts, prescribing quality varies and remains a problem (Carthy *et al.*, 2000, Davis *et al.*, 2002, Marshall and Mohammed, 2003, Prosser *et al.*, 2003).

Health policy reforms (Griffiths, 1983, Secretary of State for Health *et al.*, 1989) and management reforms (Department of Health and NHS Confederation, 2003) show the Government sees a change in culture within NHS organisations as prerequisite for successful quality improvement (Department of Health, 1998). Clinical governance aimed to reform the NHS creating an environment conducive to providing high quality care (Scully and Donaldson, 1998), and prescribing is a key concern of clinical governance (Campbell *et al.*, 2000). There is wide spread interest in the NHS in managing organisational cultures in order to improve quality and safety (Mannion *et al.*, 2009). This literature is focused on organisations which are larger units and are under direct NHS control such as hospitals (Davies *et al.*, 2007, Kennedy, 2001, Mannion *et al.*, 2005) or primary care trusts (Mannion *et al.*, 2009, Marshall *et al.*, 2002), rather than general practices, which are traditionally independently managed. Previous studies using ethnographic methods have explored the culture of general practice in relation to financial incentives (McDonald *et al.*, 2007) and nGMS contract (Checkland *et al.*, 2008, Huby *et al.*, 2008, Grant *et al.*, 2009) and knowledge management (Gabbay and le May, 2004). No study, to date, has empirically explored all aspects of prescribing in general practice using ethnographic methods. It has been claimed insights from qualitative research are needed to understand prescribing in primary care (Bradley, 2002) as prescribing is not straightforward and involves a complicated decision-making process, by both patient and doctor, whose intricacies and influencing factors are not yet fully understood (Jackson *et al.*, 2004, Thistlethwaite *et al.*, 2010).

To ensure the researcher was using the most appropriate methods to answer the research question, ‘what influences prescribing in general practice?’ time was spent giving consideration

to the research question and potential research methods. As most of the research which had already been carried out was quantitative and the researcher's literature review had identified a need for more qualitative work exploring prescribing in primary care. A decision was made to primarily focus on qualitative methods to gain an in-depth insight.

A case study research strategy was considered. A case study strategy would have allowed the researcher to adopt an exploratory research design. According to Yin (1994) case studies; want to uncover contextual conditions, believing these to be important; they rely on multiple sources of evidence (for triangulation); and they tend to rely or benefit from theoretical propositions to aid data collection and analysis. This research design would have been more prescriptive than the ethnographic approach but may have allowed the researcher to explore more general practices increasing the external validity of the study.

A case study research strategy begins with a research plan detailing the components of the research design. The first stage of this process is to identify the research questions and the propositions to guide the research. If a case study design had been adopted the researcher would have searched the literature to identify these propositions. With an ethnographic approach the researcher tried to enter the field with an open mind and not to let theoretical propositions guide the data collection and analysis.

A case study is known as a triangulated research strategy. According to Stake (1995) the need for triangulation arises from an ethical need to confirm the validity of the processes and this could be done by using multiple sources of data. In the design phase of a case study the research questions and the theoretical propositions guide the various methods adopted. There is not a prescriptive set of methods to use. The researcher can adopt qualitative and/or quantitative methods. Direct observation is often conducted in case study research however the

distinguishing feature of this type of observation from ethnographic observation is the length of time spent in the field (Yin, 1994).

Gabbay and Le May's (2004) work was of interest to the researcher before she commenced this research. This paper could have been the basis of some of the propositions used in the research design. This would have guided the researcher to be interested in 'communities of practice'. Taking guidance from Gabbay and le May (2004) could have been a good way to answer 'what influences prescribing in primary care?' This would have guided the research towards direct observation of practice meetings and other communication channels. The advantage a case study design offered the researcher over ethnographic research was the opportunity to sample a larger number of practices. Focus groups and semi-structured interviews could have provided supporting methods to triangulate the findings. Individual interviews could have been conducted with all prescribers and practice pharmacists in each of the practices exploring their personal views and preferences. Focus groups would have allowed the researcher to validate and triangulate the findings of the observation and interviews in a practice setting. Focus groups would also have allowed the researcher to explore their collective behaviour and beliefs. As practices would be the unit of analysis practice based focus groups had the potential to generate a range of experiences, views and responses from the different disciplines.

In a case study research design plan the researcher specifies the units of analysis, the logic linking the data to the propositions and the criteria for interpreting the findings (Yin, 1994). This guides the data collection to ensure the researcher focuses on the propositions. The idea is that every investigation should commence with a general analytic strategy to prioritise what to analyse and why. This is more prescriptive than an ethnographic approach and does not allow the data collected to guide the subsequent research in the same manner. Considering the amount of research which had been conducted into prescribing, the researcher was keen to

enter the field with an open mind and let the research evolve through responding to the data collected and the demands of the fieldwork context.

Ethnography provided the opportunity to study prescribers in their workplace setting, and allow the researcher to gain experience and empathise with the complexities of prescribing decision-making. Ethnography draws on a range of methods (qualitative and quantitative) where the researcher chooses which are most appropriate to answer the research question and suits the demands of the fieldwork context. This PhD has a mixed methods approach by drawing on quantitative data for sampling, and participant observation, interviews and review of practice documentation for the data collection methods. As the researcher was interested in exploring the fieldwork setting from the participant's perspective participant observation was chosen as the primary research method. With the researcher not being a clinician she had the perspective of a stranger and could potentially notice things which had become so familiar to those working in general practice they were taken for granted. To be able to experience the full range of potential influences it was felt the research would benefit from studying practices over time. Also by spending extended time in general practices allowed GPs and other practice staff time to get used to the researcher being around and revert to their everyday behaviour. As "people can alter their behaviour when someone new enters the scene, but they can only keep this up for a short time" (O'Reilly, 2005; 93).

Investigating this topic through studying for a PhD has allowed extended fieldwork, in particular more time for resource intensive observation, facilitating an in-depth study of prescribing from the perspective of three Scottish general practices.

## 1.1 Overview

Chapter 2 provides a literature review which discusses why prescribing is an important area to study defines what is meant by ‘quality prescribing’ and discusses the two common types of prescribing decision made in general practice; acute and repeat. The review then discusses the rise of the evidence based medicine movement and various interventions and mechanisms designed to improve prescribing quality and shows there are ‘no magic bullets’ (Oxman *et al.*, 1995). This chapter also briefly discusses the government initiatives which have tried to influence behaviour and establish accountability frameworks. The discussion focuses on health boards that are responsible for quality of care through clinical governance, where prescribing is a key objective of this statutory duty and describes the initiatives health boards have adopted to influence quality of prescribing. The discussion then gives consideration to the influence of hospital led prescribing, pharmaceutical drug representatives and of course the patient, as prescribing decisions should incorporate patient’s preferences and values with the research evidence. This chapter shows prescribing is a complex process with a large number of factors to consider and how we still know little about how these influences impact on general practitioners prescribing behaviour.

Chapter 3 discusses the aims and objectives of this PhD study and describes ethnography and why it is an appropriate method to answer the research questions posed. As well as describing the methodological process and the methods in detail, this chapter also describes the theoretical and philosophical framework adopted and its implications for the research findings. The methods chapter then describes the sampling frame and the recruitment process in detail. An important part of any ethnography is to be reflective so the researcher can consider their impact on the research setting and findings so the chapter also discusses the researcher’s field research experience and decisions and the researcher reflects upon these. These are issues such as gaining access; establishing a role as a participant observer; generating data whilst building



rapport and relationships and describing these different experiences in the three practices. The methods chapter also delineates the supporting data collection; opportunistic and formal interviews and review of practice documentation and describes the data management process, such as the recording of field notes and managing all this data in the analytic software, Atlas.ti. The chapter concludes by describing the analytic process; initially, a descriptive approach was adopted to understand each practice, the context and influences on prescribing, which forms the basis of the following three chapters and three theoretical models were used to help give a deeper interpretation and explanation of the prescribing behaviour observed. An interpretative approach was then adopted to explain and understand the differences between the three practices, with the findings presented in the comparative chapter.

Chapter 4 is the first of three chapters which presents the descriptive findings of the study by describing the first practice's (Rubain) characteristics, organisation, processes and systems. As this is the first chapter more contextual background is given which is common to all three practices but is not repeated in the following two chapters. A prescribing model was devised for each practice. These models have been designed to visually depict prescribing influences, with the aim of showing the differences in organisation between the practices specific to prescribing. The models also aim to show how and where these influences filter into the practice through to the consultation and how the practice's values affect how they organise themselves around these influences. The models show the processes which link these structural parts of the practice prescribing culture, the most common process is communication. The prescribing model for 'Rubain', the first practice, is described in detail and the patient specific part of the model, which is the same for all three practices, is only described in this chapter. The practice narrative around their prescribing influences and values is given in the accompanying text. The chapter then describes the external influences which are standard to the three practices and again the description of these is given in more detail in this chapter. This description then

explains how these influences are assimilated into this practice's prescribing policy. The practice prescribing policy was formulated through their communication channels which are also described in detail. This chapter then described the prescriber specific influences, such as medical training, experience, personal beliefs and attitudes and their perception and relationship with the individual patients. Chapter 4 concludes by providing an overview of the structure of a consultation and discusses continuity of care.

Chapter 5 presents a description and explanation of the second practice in this study, Rosnish. This chapter commences with a description of the practice characteristics, processes and systems. Again the chapter has been structured around a practice specific prescribing model describing and explaining how this practice considers and formulates these influences into their practice prescribing policy. The chapter then discusses the influence of other practice staff and the prescriber's core values, which were not viewed equally, so are presented in a hierarchy. Finally, micro prescribing decisions were discussed in the consultation or interaction between GP and patient and the importance of continuity of care to patients.

Chapter 6 gives a description and explanation of the third practice in the study, the Haun. This chapter follows the same structure as the previous two chapters and takes the explanation to a more analytic and interpretive level by starting to draw comparison across the three practices.

Chapter 7 interpretively compares the three practices. This chapter draws on similarities and differences across the range of influences which were shown to shape prescribing decision-making at two different levels, macro and micro and presents the findings of this PhD study.

Chapter 8 is the discussion chapter which presents the concepts and findings which emerged through the analysis and discusses these in light of the existing literature. In this chapter

theories have been applied to the findings to help gain a deeper interpretation and understanding of the influences on prescribing decision-making and how they have their effect. This chapter also discusses whether the research methodology was appropriate in answering the research questions and the extent to which the findings are transferable to another population.

The final chapter, 9, initially reviews the main findings from this study, followed by a discussion of the implications of these findings for future quality improvement work and further research.

## *Chapter 2*

### LITERATURE REVIEW

#### 2.1 Why is Prescribing Important?

This section will illustrate the importance of prescribing, the financial burden it places on the NHS and importance of the changing demographics of the population places on prescribing in the future.

Prescribing is the most common treatment method in the NHS (Barber *et al.*, 2003). The aim of prescribing is to manage a disease and/or a condition; to alleviate symptoms; to prevent deterioration or to cure; and to improve quality of life.

Prescribing accounts for 11% of the total cost of the NHS, with 825.8 million prescriptions dispensed in primary care alone each year (The Association of the British Pharmaceutical Society, 2007). In Scotland alone, the NHS spent £1 billion in 2004-2005 on prescription drugs (Information and Statistics Division Scotland, 2004-2005). In England, the net ingredient cost of all prescriptions dispensed increased by 0.6% to £8,325.5 million in 2008; 842.5 million prescriptions were dispensed, this is an increase of 5.8% on 2007 (NHS The Information Centre, 2008).

In the U.K we have an aging population; the elderly have an increased prevalence of long-term conditions which require appropriate pharmaceutical intervention (Office for National Statistics, 2010). They receive nearly half of all prescriptions (Department of Health, 2000). In 2005, 17.5 million people reported a long-term condition and for some people, in particular the elderly, they were more likely to report more than one condition (Department of Health, 2007).

The impact of managing this means huge financial impact on the NHS but also more complex decision making for clinicians.

Prescribing is fundamental part of modern medicine; ensuring patients enjoy an improved quality of life or are cured altogether. With an ever aging population the need for pharmaceutical drugs is likely to increase thus the financial burden to the NHS is likely to keep rising.

## 2.2 Quality Prescribing Decisions

Prescribing is complex, it incorporates a huge number of factors, so is difficult to define and evaluate. This section will describe ‘what is quality prescribing’ and explain why many prescribing decisions are not always based on the evidence, illustrating the complexity of prescribing decisions.

### *2.2.1 What is quality in prescribing?*

Prescribing quality is difficult to define. As (Hemminki, 1975; 111) pointed out “if only medical factors influenced prescribing, the variation in prescribing practices might be explained by differing patient populations but many other factors....have been found to affect prescribing”. Thus, quality cannot be judged on pharmacology alone. This section will discuss previous definitions and the discussions in the literature surrounding prescribing quality.

Parish (1973) established the first definition of ‘good’ prescribing; ‘appropriate, safe, effective and economic.’ This definition has been widely sighted but at over 30 years old it is still correct but has been exceeded by more specific definitions. Bradley’s (1991) literature review included reports of characteristics of ‘quality’ prescribing but most of the studies included looked at the characteristics of prescribers or practices, or looked more at bio-markers, and the

majority were not in primary care. Although an important part of good prescribing this definition sees the person as a disease or condition rather than as a person (Barber, 1995), and does not look at the patients perspective and the importance of shared decision-making. The Audit Commission Report (1994) 'A prescription for improvement', concluded that 'more rational prescribing by GPs will lead to both better quality care for patients and to minor economies of drug expenditure.' These definitions do not appreciate the individual nature of each prescribing decision and do not take account of the social aspects of prescribing. These previous definitions were rejected by Barber who believed that rather than defining 'good' prescribing, the aims of prescribing decision-making and monitoring should be defined. He established four aims; to 'maximise effectiveness; minimise risks; minimise costs; to respect the patient's choices.' Prior, to 2000 this was the established 'definition' of 'quality prescribing' as it takes account of the fact that 'good' prescribing cannot always be achieved, illustrates awareness of the numerous factors and how the patients perspective and circumstances impact on the prescribing decision.

#### *2.2.1.1 Maximise effectiveness*

Effects are usually measured in a biomedical way, by assigning a numerical value to assess effectiveness, such as measuring blood pressure. The value of any prescribed drug is often established through cumulative research evidence e.g. in Cochrane reviews and is formulated into guidelines, which establish optimal treatment. For example, blood pressure where a patient's blood pressure should not be more than systolic BP  $\geq 160$  mm Hg or diastolic BP  $\geq 100$  mm Hg (Scottish Intercollegiate Guidelines Network, 2007). Effectiveness also involves protecting the population from resistance of antimicrobials, therefore only prescribing medication when needed, and ensuring what is prescribed is evidence-based. Effectiveness can be measured through a relevant clinical outcome such as blood pressure below the recommended levels, or control of angina symptoms, or free from infection. However, often

the endpoint is subjective such as relief from pain and in these more subjective measures patient satisfaction or empowerment is the only real assessment of success (Sullivan and MacNaughton, 1996, Cribb and Barber, 1997, Hynes, 1992).

#### *2.2.1.2 Minimise risks*

Risk is the chance of an adverse reaction, interaction or side-effect from prescribed medication. “Safety is a level of risk that is acceptable to a culture, context, or individual” (Barber, 1995; 924). Since Barber’s (1995) paper the U.S Institute of Medicine has published two widely cited reports: ‘To Err is Human; Building a Safer Health Care System’ (U.S. Institute of Medicine, 2000) and ‘Crossing the Quality Chasm’ (U.S. Institute of Medicine, 2001), which have highlighted the importance of safety and this is now recognised as an important aspect of quality. ‘To Err is Human’ was the first report published in 2000 and highlighted medical errors pushing for an awareness of patient safety. ‘Crossing the Quality Chasm’ published two years later furthered many of these points. These two publications highlight that clinicians do make mistakes when prescribing medication which, in some cases, can compromise safety. Patients on repeat medication must be reviewed regularly to check their medication is still needed and is at the required dose. Patients need to be monitored to ensure they comply with treatment, their prescriptions are wanted, they know what to do and they are taking them properly. This is a long-term issue, as our population ages and there is an increase in poly-pharmacy and thus the risk of drug interactions increases.

#### *2.2.1.3 Minimise costs*

When assessing cost, consideration should not just be given to the cost of the drug alone, costs such as the administration of the drug (nurse time or monitoring), the cost to the patient (such as travel, time, loss of time at work) and the cost of dispensing should be taken into account. However, direct costs are important, drugs become cheaper when they come off patent and

prescribers are strongly encouraged to prescribe a generic preparation where ever possible. Clinicians must ensure there is no drug wastage and monitor long-term prescribing; as costs can be reduced by improved cost-effectiveness. Clinicians have a moral obligation to try and keep costs at a minimum; the NHS is funded by public money and by keeping costs down the money can benefit other sectors of the NHS (Barber, 1995).

#### *2.2.1.4 Respect patient wishes*

Ultimately, it is the patient's wishes which govern any prescribing decision, as it is up to the patient whether to have the medication dispensed, whether to take the medication and how they are going to take it (Barber, 1995). Therefore, it is important the patient is educated and is able to make informed choices about their health care. The patient must be able to express their expectations, have effective communication with the clinician, have a trusting relationship and be able to come to a decision which is favourable to both the clinician and the patient. Patients should be able to express what they would like from the treatment, (e.g. the degree of side effects versus effectiveness) and the frequency of their treatment regime. The treatment regime should suit the patient, but not at the expense of the 'social good', i.e. not at the expense of other patients, so costs should be kept to a minimum. Each prescribing decision is unique and has its own complexities, this, combined with cost minimisation, means the ratification of each prescribing decision should be at the prescribers discretion. Each decision should observe all these principles and preserve clinical autonomy.

Through describing prescribing quality, the complexities of prescribing decision making have been highlighted. Prescribing decisions should be evidence-based whenever possible;

- ensuring there are no adverse drug reactions, side effects or contraindications (Avery *et al.*, 2007, Howard *et al.*, 2008);



- be based on effective communication between practitioner and patient, ensuring the patient's wishes are respected (Charles *et al.*, 1997, Stevenson *et al.*, 2000a);
- the patient understands the importance of compliance (Cameron, 1996).

This should all be done in a 10 minute consultation. Autonomy should be given to the prescriber to weigh up these issues, to come to the optimal decision with the available information, within the available time.

(Adapted from Barber, 1995)

## 2.3 The prescribing process

The aims of quality prescribing decision-making have been discussed however, it is important to pay attention to the two different kinds of prescribing decision made by general practitioners.

There are two different types of prescription, the one off prescription, for say an infection, and the repeat prescription for long term conditions. A prescribing decision is about what drug to prescribe but to also about reviewing and changing medication, or stopping it all together. Prescribing decisions are not straight forward so it is important to understand how prescribing decisions are reached. This section will describe the two different types of prescription (acute and repeat) and discuss how prescribing decisions are reached.

### 2.3.1 Acute prescriptions

An acute prescription is one which the patient usually receives on a one off basis for a condition which is short lived. A patient presents in the consultation with a problem and after a verbal and sometimes physical examination the doctor makes a diagnosis and if necessary recommendations for treatment. Normally the doctor writes and signs the prescription in a consultation with the patient after some discussion; however they can be recommended by a

hospital consultant after a patient's visit to secondary care. There is a knowledge gap between the GP and the patient so the GP must try to bridge this gap through clear communication, and identify the patient's priorities (Bradley, 1992a).

### *2.3.2 Repeat prescriptions*

A repeat prescription is one where the patient receives the prescription for an extended period of time, usually for a long-term condition. Repeat prescriptions are usually issued without a consultation with the patient (Zermansky, 1996) and the majority of drugs prescribed (80%) by GPs in the UK are repeat prescriptions (Harris and Dajda, 1996). The oral contraceptive is an example of medication which will go straight onto repeats and given a six month supply, other medication will usually be given a 3 or 2 month supply (McGavock *et al.*, 1999). Repeat prescriptions are printed by computer usually in large batches, which means that it is less likely the doctor will spend time thinking about individual prescriptions (Harris and Dajda, 1996). Thus, how the process is managed is very important. Zermansky (1996) found that 72% of repeat prescribing in a sample of 50 practices had not been reviewed in 15 months. This is both wasteful and dangerous, as patients change and their illnesses change. McGavock *et al.*, (1999) found that repeat prescribing was poorly managed in substantial proportion of the practices in their study.

The nGMS contract (Department of Health and NHS Confederation, 2003) requires an annual medication review to ensure appropriateness of medications and to check potential side effects or interactions, so the management of repeat prescriptions is likely to have improved since McGavock's study (1999). One of the challenges of this recommendation is the time to conduct through reviews (Avery *et al.*, 2002). Computers can automate some of this; they can be used to monitor compliance and can be used to set prompts as reminders. Also the electronic patient record presents the patient's information in a clearer format than the old paper records (Sullivan

and Wyatt, 2005). Zermansky *et al* (2001) have shown that pharmacists are effective at conducting medication reviews. Also, practices have clinics for specific health problems, such as asthma and diabetes, where patient medication is reviewed and these are often conducted by a specialist nurse. Although time is an issue, monitoring of repeat medication is important for prescribing quality and improvement can be facilitated by computers and by medication reviews conducted by other members of the primary care team.

Prescribing decisions are not straight forward and normally come in two formats in primary care. Important to understand how prescribing decisions are reached.

### *2.3.3 How are prescribing decisions reached?*

#### *2.3.3.1 Choice of drug*

In the first stage of a prescribing decision, the doctor decides whether a drug is required (Bradley, 1991). Little *et al* (2004) found doctor's behaviour in a consultation is most strongly associated with perceived medical need of the patient. This initial decision is a decision of benefit versus risk (Denig and Bradley, 1998), do the benefits of the medication outweigh the risks associated with medication in the individual patient. For example, every time a clinician prescribes a statin they are aware of the potential risks to a patient's liver. Clinicians generally do a liver function test and monitor this. However, they have to consider whether the risks to the patient's liver outweigh the risks of a heart attack. Once doctors have decided to prescribe they then chose a drug treatment. Doctors decide whether to adopt a (new) drug or to choose a drug which they know well (Denig and Bradley, 1998). Firstly, the decision to choose a drug they know well is explored and then the decision of whether to adopt a new drug.

Each doctor has a personal set of drugs with which he or she is familiar (Taylor and Bond, 1991). They normally choose from this set when confronted with an individual patient (Denig

and Bradley, 1998). Doctors do not weigh the risks and benefits of medication each time they make a prescribing decision; they make shortcuts in their decision-making process (Gabbay and le May, 2004). Denig and Bradley (1998) suggest three different decision strategies used as shortcuts in the prescribing decision; pragmatic, intuitive and emotional. The pragmatic approach recognises that doctors will not continually consider the same trade-offs, so in situations which are repetitive they will adopt a routine behaviour. Denig and Haaijer-Ruskamp (1994) found in relatively simple cases (urinary tract infection) GPs made their treatment decisions with little deliberation, suggesting routine behaviour. Their study showed in more complex cases (such as stomach and reflux complaints) GPs engaged in more evaluation of possible management and treatment options. The intuitive approach recognises doctors may sometimes base decisions on intuition and personal experience. Doctors may chose treatments because they worked well in previous cases. For example, there are no guidelines on what selective serotonin reuptake inhibitor (SSRI) to prescribe so a clinician is likely to prescribe one which has worked well for patients in the past. The emotional approach highlights that doctors are not just driven by cognitive factors but also emotional factors (Denig and Bradley, 1998), such as acting to please others. For example, a patient may come into the surgery asking for an antibiotic because they are going on holiday. The clinician may feel the symptoms are likely to go away by themselves but the patient is being forceful as they are concerned about their holiday. These decisions may go against the doctor's judgement and leave them feeling uncomfortable (Bradley, 1992b). The strategy which is followed depends on the nature of the prescribing decision, the context and the doctor. "The use of a particular strategy can be part a characteristic of a particular doctor" (Denig and Bradley, 1998, Denig and Bradley, 1998; 83).

### *New drug*

Prosser *et al* (2003) found doctors initiated new drugs by proxy (based on another clinician's decision) or through their own personal choice. When doctors personally made the decision to initiate a new drug they were influenced by its perceived economic or pharmacological advantages over alternative treatments (Prosser *et al.*, 2003). However, GPs did not actively seek information and thus relied heavily on advertising and pharmaceutical representatives to learn about new drugs (Prosser *et al.*, 2003, Jones *et al.*, 2001b). This information may not be comprehensive.

Further work on this issue by Prosser and Walley (2003) ranked practices into high or low prescribers of new drugs using the local health authority prescribing data. Both groups felt they would only prescribe a new drug when they felt they offered a relative advantage over current therapy. The most frequently cited influence for the high prescribers was the pharmaceutical representative. The low prescribers managed risks by adopting a 'wait and see' policy and high prescribers on the other hand appeared either to accept uncertainty and the risks involved, or considered risks to be minimal on the grounds that the approving licensing authority had considered safety. This research shows the differences in attitudes to innovation, risk perception and benefit between these two groups of doctors. These findings are supported by Jacoby *et al* (2003) who found a difference in attitudes between low and high prescribers of new drugs.

In conclusion, doctors prescribing decision are not always a rational trade-off involving a number of different outcomes. Doctors use short-cuts. In frequently made decisions they prescribe routinely. Doctors also rely on intuition and experience and may make prescribing decisions based on emotion, usually to please others. When prescribing a new drug GPs are usually influenced by perceived economic or pharmacological advantages and their attitudes

towards risk perception versus benefit. Thus some variation in prescribing can be attributed to differing doctor characteristics.

## 2.4 Attempts to improve prescribing

Traditionally clinical experience guided the choice of treatment (Armstrong, 2002). Cochrane (1972) argued this left treatment decisions open to subjective interpretation with the result that different doctors often arrived at different conclusions about the effectiveness of the same intervention. Cochrane's solution was to subject treatments to the randomised controlled trial (RCT). The RCT became the pinnacle of a new hierarchy of medical knowledge as it could weigh scientific evidence for or against a clinical intervention (Ho *et al.*, 2008). This heralded the start of the evidence based medicine (EBM) movement, where this new knowledge could be disseminated and used to inform clinical decision-making.

This section will discuss the evidence based medicine movement and then the strategies and techniques which have been developed and used for dissemination and implementation.

### 2.4.1 Evidence based medicine

The EBM movement is aimed at helping health care practitioners, patients and policy makers make decisions with regard to health care, including prescribing, by basing these decisions on the best evidence available (Grol, 2001). Thus, EBM offered a more rational basis for prescribing to replace the idiosyncrasies of individual practitioner judgement (Armstrong and Ogden, 2006). Early publications championing EBM advocated for the need to move beyond clinical experience and physiological principles to a rigorous evaluation of the consequences of clinical actions' (Oxman *et al.*, 1993, Group, 1992). These early publications were all about the research evidence. However, a paradigm shift occurred with the seminal publication by Sackett *et al.* (1996) which advocated shared decision-making with the patient. "Evidence

based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research. By individual clinical expertise we mean the proficiency and judgement that individual clinicians acquire through clinical experience and clinical practice” (Sackett *et al.*, 1996; 71). This paper introduced the idea of integrating the evidence with patient’s choices and preferences and clinical judgement.

The underlying assumption of EBM is that not all evidence is equal. At the top of the list is the randomised controlled trial, followed by the non-randomised controlled studies and case studies. The seminal paper by Sackett *et al.* (1996) also reformed how evidence should be considered; “evidence based medicine is not restricted to randomised trials and meta-analyses. It involves tracking down the best available evidence with which to answer our clinical questions” (Sackett *et al.*, 1996; 71).

The fundamental principles of EBM are widely accepted but implementation is patchy (Barratt, 2008). Over time, as it has become apparent that implementation is not rational and linear so the EBM movement has started to focus on the organisational and behavioural barriers to getting research into practice (Bero *et al.*, 1998, Haines and Donald, 1998). Initially, it was assumed that the implementation gap (between research evidence and practice) was due to information not being easily accessible. So summarised evidence in the form of guidelines (discussed in further detail in section 2.4.1.1) were published and disseminated assuming that changes in practice would automatically happen. It has become clear that reliance on passive dissemination of information to keep health professionals up-to-date is ineffective when around two million articles on medical issues are published annually (Mulrow, 1994).

Attempts have been made to make EBM more accessible and digestible to reduce the implementation gap between research evidence and practice. This section will discuss the various strategies to improve quality prescribing and reduce the implementation gap.

#### *2.4.1.1 Guidelines*

Guidelines are recommendations for clinical practice, designed to aid decision-making. They are made up of synthesised scientific evidence and expert opinion and knowledge about the delivery of health care, published in paper and electronic format. As health care involves large amounts of complex information, guidelines provide an efficient means to summarise this (Moreira *et al.*, 2006). Clinical practice guidelines are the accumulation of empirical study of medical treatment efficacy. They are intended to improve clinical performance and outcomes by enhancing clinician's knowledge and skills (Graham *et al.*, 2000).

The Scottish Intercollegiate Guidelines Network (SIGN) was formed in 1993 and develops evidence based practice guidelines for the NHS in Scotland (Scottish Intercollegiate Guidelines Network, 2009). The National Institute for Health and Clinical Excellence (NICE) was set up in April 1999 to provide patients, health professionals, and the public with guidance on best practice (National Institute for Health and Clinical Excellence, 2010).

Wathen and Dean (2004) found that NICE guidance on its own had little impact on GP prescribing. A review carried out by the Cochrane Collaboration concluded that passive dissemination had a small impact on practice and substantial change was unlikely to be achieved by this method (Farmer *et al.*, 2008). No effect was found of computerised evidence based guidelines on the management of asthma or angina in adults in primary care (Eccles *et al.*, 2002). The authors concluded this was due to low levels of use of the software.



Berg commented that one of the problems with guidelines is that they see patient management as a series of formal rational decisions and there is a single optimal solution to every medication problem (Berg, 1997). Eccles *et al* (2002) felt even if they overcame the technical problems of the computerised guidelines, there remained the challenge of integrating this into clinical encounters where clinicians manage patients with complex and co-morbidities.

A study exploring the attributes of guidelines, to establish which factors influenced their use, found guidance was followed in 61% of the decisions and that evidence based recommendations were followed more than recommendations not based on research evidence (71% versus 57%). The authors conclude the organisations publishing guidelines should take account of some of the other attributes of recommendations for clinical practice (Grol *et al.*, 1998).

#### *2.4.1.2 Computer decision support systems*

Computer decision support systems are designed to improve clinical decision making by incorporating knowledge in guidelines to allow patient specific decision-making. The characteristics of individual patients are matched to a computerised knowledge base, and software algorithms generate patient specific recommendations (Garg *et al.*, 2005). They are designed to help with complex decision making, e.g. drug dosing in particular children and the elderly (Franke *et al.*, 2000), or to help with drug interactions or previous allergic reactions to the drug (Barber, 2004). These support systems are flexible enough to factor in individual patient views and preferences (Montgomery *et al.*, 2000). These are designed to be used during the consultation (Sullivan and Wyatt, 2005) and are designed to be helpful for managing patients with complex and multiple conditions.

A systematic review of computerised clinical decision support systems on practitioner performance and patient outcomes concluded many CDSSs improve practitioner performance but the effects on patient outcomes remain under-researched (Garg *et al.*, 2005). A randomised controlled trial has shown that using a computer based clinical decision support system did not find any additional benefits compared with chart guidelines and may have impaired the interpretation of evidence to individual patients (Montgomery *et al.*, 2000). An evaluation of a RCT found significant barriers to the use of a CDSS for chronic disease by general practitioners. The key issues were the relevance and accuracy of messages and the lack of flexibility to respond to other factors influencing decision making in primary care (Rousseau *et al.*, 2003). The authors concluded primary care consultations are complex interactions between a professional and patient and intervening at this interpersonal level is difficult.

There are significant opportunities for improving the safety of general practice computer systems and priorities include improving the knowledge base of clinical decision support (Avery *et al.*, 2007), however, it remains unclear if they can intervene in a meaningful way between the doctor-patient relationships.

#### *2.4.2 Health Board initiatives*

In Scotland health boards are responsible for quality improvement through clinical governance (clinical governance is discussed in section 2.5.1). The health boards have adopted some commonly used techniques for reducing the implementation gap and improving the quality of prescribing.

##### *2.4.2.1 Prescribing data and indicators*

Health boards monitor prescribing data to support medicines management and clinical governance (Kendall, 2004). Currently, after dispensing, prescriptions are sent to either the

Prescription Pricing Authority in England, to the Common Services Agency in Scotland or to Health Solutions in Wales. The health boards receive this information from these organisations which they use to manage and monitor prescribing. This is aggregated data, based on prescriptions dispensed rather than prescriptions written and is not linked to patient medical records.

Measurement plays an important part in quality improvement (Donabedian, 2003). Prescribing data are used to help benchmark the performance of prescribers and NHS organisations. This benchmarking is achieved through the use of prescribing indicators or performance indicators. Prescribing indicators are used for a range of purposes but for those used to measure appropriateness, availability, efficacy and effectiveness should be based on robust evidence to promote the wider use of evidence based interventions (McColl *et al.*, 1998a). By applying prescribing indicators to data, standards are set (Bateman *et al.*, 1996) and health boards can identify variation in prescribing across general practices (Avery *et al.*, 1998) and possible areas for improvement.

Current prescribing indicators are criticised due to the limitations of the prescribing data. Although the data is comprehensive and timely, the data is not combined with diagnosis, data on specific patients or on any outcome measures (Campbell *et al.*, 2000). Indicators are criticised for reflecting access and efficiency rather than effectiveness (McColl *et al.*, 1998a).

Anecdotal evidence suggests that prescribing indicators are more appropriately related to cost than quality; particularly at the practice level (the unit of analysis for most prescribing indicators) (Campbell *et al.*, 2000). However, Morris *et al* (2006) have shown applying prescribing indicators to practice data can be used to facilitate practice-wide discussions on medicines management.

Audits are used to apply these indicators to the data and identify variation. Variation in prescribing could indicate variable quality of care (Kendall, 2004). The next section discusses audit and feedback.

#### *2.4.2.2 Audit and feedback*

Audit and feedback is a widely used strategy to promote the implementation of research evidence and encourage change in prescribing behaviour. Practitioners are prompted to modify their prescribing behaviour by being compared to their peers or by clinical guidelines (Jamtvedt *et al.*, 2006). EBM based quantitative measures and standards, called prescribing indicators (discussed above) are applied to prescribing data to identify variation.

A systematic review found audit and feedback to be effective at improving professional practice, however when it is effective, the effects are generally small to moderate. The authors concluded the relative effectiveness of audit and feedback was likely to be greater when baseline adherence to recommended practice is lower and when feedback is delivered more intensively (Jamtvedt *et al.*, 2006). The timing of feedback delivery can affect the result of behaviour change (Robinson, 1994) as can the credibility of the feedback source (Exworthy *et al.*, 2003). Individualised feedback was found to work well at improving quality and reducing costs in Spain (Madrdejos-Mora *et al.*, 2004), however due to repeat prescribing systems in the UK this is difficult to achieve.

Foy *et al* (2005) tried to assess whether current guidance and systematic review evidence can sufficiently inform practical decisions about how to use audit and feedback to improve quality of care. The authors showed the evidence suggests that audit and feedback can be effective in changing healthcare professional practice. However, the evidence said little about the detail of how to use audit and feedback most efficiently. Foy *et al* (2005) conclude audit and feedback

will continue to be an unreliable approach to quality improvement until we learn how and when it works best.

#### *2.4.2.3 Educational outreach*

Educational outreach is also commonly referred to as academic detailing or educational meetings. These are a form of continuing medical education where a trained health professional such as a clinician or a pharmacist visits general practitioners in their surgeries to provide evidence based information (Allen *et al.*, 2007). Educational meetings are commonly used for continuing medical education with the aim of improving professional practice and thereby, patient outcomes (Forsetlund *et al.*, 2009).

A systematic review of literature relating to the effectiveness of educational strategies designed to change physician behaviour. Davis *et al.*, (1995) found widely used delivery methods such as conferences have little direct impact on improving professional practice, so more outreach visits are now more commonly used. A review found that interactive educational sessions that enhance participant activity and provide the opportunity to practice skills can effect change in professional practice. Didactic sessions do not appear to be effective in changing physician performance (Davis *et al.*, 1999).

A systematic review of continuing education meetings and workshops found educational meetings alone or combined with other interventions, can improve professional practice and healthcare outcomes for the patients but the effect is most likely to be small and similar to other types of continuing medical education, such as audit and feedback (Forsetlund *et al.*, 2009). Allen *et al.*, (2007) found practitioners highly value the merit of educational outreach meetings and tend to view information from other sources more critically because of its evidence based approach.

Educational outreach meetings are commonly carried out by pharmacists and originally were perceived to be a useful and cost effective way to improve the quality of prescribing in the US (Avorn and Soumerai, 1983). A RCT of the effect of educational outreach by community pharmacists on prescribing in UK general practice found in large practices, educational outreach alone is unlikely to achieve worthwhile change; however, there was good evidence to support the use of educational outreach visits in small practices (Freemantle *et al.*, 2002). Watkins (2004) found it is important for preparing the practice adequately, which included providing protected time for all GPs to attend the educational intervention. Another UK RCT found in practices with good baseline prescribing there was limited capacity for improvement and the trial failed to provide evidence that guidelines and educational outreach visits by community pharmacists lead to substantial improvements in prescribing behaviour (Watson *et al.*, 2001).

#### *2.4.2.4 Practice pharmacists/prescribing advisors*

Pharmacists are increasingly being used to influence prescribing in primary care (Lipman and Price, 2000) and are frequently referred to as pharmaceutical advisors or practice pharmacists. These terms are often used interchangeably and distinctions between the terms are often not clear. Pharmacists are employed by Health Boards in Scotland and Primary Care Trusts in England to advise on prescribing processes, all aspects of drug therapy (including adhering with the health board formulary) and to help contain prescribing costs. A common distinction is that practice pharmacists are practice based whereas prescribing advisors are not but this is based on anecdotal evidence rather than peer reviewed research. Whether they are based in a practice or not, pharmacists with both titles have the same objective; to promote rational prescribing and evidence-based medicine, to improve the pharmaceutical care of patient and to help the practice contain its prescribing costs.

Pharmacists working in primary care have been found to improve pharmaceutical care in a number of clinical areas, diabetes care (Jameson and Baty 2010, Lindenmeyer *et al.*, 2006), hypertension (Rozenfeld *et al.*, 2006), chronic pain management (McDermott *et al.*, 2006), and in medication review (Krska *et al.*, 2001). A systematic review of pharmacist led-medication reviews found pharmacists were not more likely to reduce mortality or hospital admissions. The authors found patients were more likely to take less medication and may have improved drug knowledge and adherence but there was insufficient data to measure quality of life (Holland *et al.*, 2008).

This literature review identified little evidence supporting the effectiveness of pharmacists at promoting rational prescribing and reducing prescribing costs. The effect of integrating a pharmacist into primary care has not been extensively studied (Dolovich *et al.*, 2008, Tonna *et al.*, 2007). Teal *et al* (2002) found it was hard to quantify and estimate the effect of practice pharmacists, which is possibly why there is limited research. A pharmacist intervention program in primary care was associated with a significant increase in adherence to guidelines for ACE or ARB therapy and for aspirin therapy in diabetic patients (LaMarr *et al.*, 2010). A randomised controlled trial of the effect of routine use of untargeted educational outreach visits by pharmaceutical advisors concluded they may not be a worthwhile strategy (Eccles *et al.*, 2007). Whereas a qualitative study found GPs appreciated the enhanced group interaction, reliable drug information and a greater sense of team-working with pharmacists employed in practices (Pottie *et al.*, 2008).

#### *2.4.2.5 Health Board formularies*

The British National Formulary (BNF) is a joint publication of the British Medical Association and the Royal Pharmaceutical Society of Great Britain. The BNF aims to provide prescribers, pharmacists and other health professionals with sound up-to-date information about the use of

medicines. The BNF as an independent professional publication is highly respected and widely used by health care professionals in the U.K. (Cantrill, 2000).

Each health board produces a local area health board prescribing formulary, which generally contains fewer medications than the BNF as the aim is to rationalise and standardise prescribing across the health board. The health board formulary is commonly held on general practice computer systems and defaults to the generic substitution (Barber, 2004).

Increasingly, practices are adopting their own practice formulary, which is a limited list of medications from the health board formulary, from which a general practitioner prescribes. By prescribing from a formulary, the practice has focused on a limited list of which the clinician is able to know more about these medications. Thus, much of the preliminary prescribing decisions are made by the practice not by individual (Jacoby *et al.*, 2003). Avery *et al* (1997) found GPs prescribe from a narrower range of drugs with a formulary and the number of drugs on the formulary has been found to increase with practice size (McCarthy *et al.*, 1992). In a utilitarian system such as the NHS generic substitution and the use of a formulary can be used to benefit other parts of the system (Barber, 2004).

## 2.5 Government Initiatives

Running concurrently with the EBM movement have been a number of government initiatives and reforms. This section will discuss two important reforms for prescribing quality improvement; clinical governance and the nGMS contract.

In the early years of the NHS it was a demand led system with quality inherent in the system, maintained and sustained through the ethos and skills of its health professionals (Donaldson and Gray, 1998). By the 1980s, it was widely recognised that the NHS was demand led with



the largest share of resources being used to manage the pressures of the acute hospital sector and cost containment was an increasing problem. As a result of the NHS Management Inquiry chaired by Roy Griffiths, led to the Griffiths Report (1983) which led to the introduction of general managers at every level of the NHS (Day and Klein, 1983) who were responsible for performance. Although this resulted in a heightened awareness of accountability for performance, managers were accountable for financial and workload targets and responsibility for quality of care still lay with the clinicians (Donaldson and Gray, 1998).

With the new Conservative Government came a new publication ‘Working for patients’ (Secretary of State for Health, 1989) which introduced an internal market, creating the purchaser provider split. This created general practitioners as the purchasers of care and Health Boards in Scotland and Primary Care Trusts in England as the providers of community and hospital services. General practitioners purchased services to meet the needs of their local population. The intention was to create incentives, create efficiencies and improve quality. This created the opportunity for general practices to become fundholders and have responsibility for their own prescribing budgets. Not all practices took up this opportunity but in those who did they prescribed a significantly higher proportion of their items as generics, which are cheaper than the brand equivalents (Audit Commission, 1994). The internal market was controversial until it was abandoned by the new Labour Government who came into power in 1997. It was controversial as the inherent notions of competition were perceived as wrong in a publically funded service (Dixon and Mays, 1997).

The new Labour Government published a white paper for the NHS, *The new NHS: modern and dependable* (Department of Health, 1997) which sought to establish a culture and a spirit of collaboration, openness, and fairness (Donaldson and Gray, 1998). This new policy also introduced a statutory duty for quality improvement at a local level; clinical governance.

### *2.5.1 Clinical governance*

Clinical governance established a statutory duty for high quality care to be delivered throughout the NHS. The widely used definition of clinical governance is “a framework through which the NHS organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish” (Sally and Donaldson, 1998; 61). Clinical governance sought to establish a no blame culture and to readdress the relationship between clinicians and management and doctors and patients (Halligan and Donaldson, 2001).

Clinical governance incorporated clinical performance into management systems (Exworthy *et al.*, 2003) and brought clinical decision making into a management and organisational framework (Donaldson and Gray, 1998). This established a clear accountability framework and prescribing is a key clinical governance objective of primary care trusts and boards (Campbell *et al.*, 2000). As a result health boards have adopted a number of the quality improvement techniques described in section 2.4.2.

### *2.5.2 New General Medical Services Contract*

In 2004 a new contract was introduced for General Practitioners in the UK, which introduced a significant element of ‘pay-for-performance’ (Checkland *et al.*, 2008). The nGMS contract established a new system of reimbursement linked to performance indicators, the Quality and Outcomes Framework (QOF) which created a number of new measures for quality of care. This radically reformed the GPs method of payment. This has been described as “an initiative to improve the quality of primary care that is the boldest such proposal on this scale ever attempted anywhere in the world” (Shekelle, 2003; 457). This new contract is radical as it subjects independent contractors, who traditionally had a great deal of autonomy, to external scrutiny and control (Huby *et al.*, 2008).

The Quality and Outcomes Framework is comprised of 146 indicators drawn from a number of domains: chronic disease management (76 indicators covering eleven chronic diseases), ‘practice organisation’ (56 indicators), ‘patient experience’ (4 indicators) and additional services (10 indicators); and an additional ‘bonus’ indicator ‘access’ (1 indicator) (Department of Health and NHS Confederation, 2003).

In the first year of the nGMS contract the average QOF achievement was 959 (91%) which polarised views, with newspaper headlines suggesting ‘Doctors get 20% pay rise just for doing their jobs’ while others argued that primary care had ‘stepped up’ and worked hard to improve patient care (Timmins, 2005). This shows the tension in views as to whether QOF rewards past and ongoing achievements or whether it acts as an incentive, whereas in reality it is both (Lester *et al.*, 2006). An expert panel was convened in 2005 to review QOF which resulted in small but significant changes; fewer points are allocated to organisational areas and recognising improvements have been achieved is now part of standard rather than quality of care. It has been said the glory financial days of the new contract are over and GPs are working to strive for quality and financial remuneration (David Gill, Pharmacy Clinical Lead, NHS Tayside, personal communication).

## 2.6 Further Influences on Prescribing

### 2.6.1 Hospital led prescribing

There are two predominate forms of prescription in general practice; the GP-driven prescription and the hospital-led prescription. Hospital led prescribing is where the prescribing of medication is initiated in hospital. Prosser *et al* (2003) found hospital led prescribing and drug representatives were cited as the most common reasons for prescribing a new drug after failure of current therapy or adverse drug reactions (Prosser *et al.*, 2003). Hospital consultants are an important influence on GP prescribing (Prosser and Walley, 2003, Jacoby *et al.*, 2003), with a

significant number of new drugs prescribed being hospital initiated or hospital led (Jacoby *et al.*, 2003). Hospital initiated prescriptions are responsible for a significant proportion, in both cost and volume of GP prescribing (Feely *et al.*, 1999, Avery *et al.*, 1998, Avery *et al.*, 2000). GPs find it difficult to change or refuse to prescribe medication which had been initiated in hospital because they feel it could be damaging to their relationship both with their patients and consultants (Jones *et al.*, 2001a). This has important cost implications for chronic medications where the extent of repeat prescribing is high (de Vries *et al.*, 1995).

Hospital consultants are reported to be an important source of information on new drugs (McGettigan *et al.*, 2001). When prescribing new drugs, practitioners are trying to balance a range of factors, such as potential side effects, long-term effects, and the range of therapeutic indications and for which there is relatively little information available and much of this medication they may have little or no practice experience (Jacoby *et al.*, 2003). Under these circumstances prescribing may be more ‘an act of faith’ than a rational process (Mapes, 1977), so it is understandable GPs will follow the expert’s advice. As well as following hospital recommendations, GPs are also influenced by the experience of seeing patients who had been prescribed particular drugs by a consultant and then following their example (Jones *et al.*, 2001b).

### *2.6.2 Pharmaceutical drug representatives*

Pharmaceutical drug representatives are employed by drug companies to promote their products. The pharmaceutical industry spends £850 million marketing its products to GPs (National Audit Office, 2007). Studies from several countries show that 80-95% of doctors see drug representatives regularly (Moynihan, 2003). Jones *et al* (2001b) showed some GPs have often used drug company information as their sole source of information on new drugs. Obtaining drug information from drug representatives requires minimal effort, as these

representatives come into general practices with information packaged in 'bite-size' pieces, which is marketed well and often accompanied by a free lunch. Although this information appears to be supported by the evidence it is full of emotional appeals and misconceptions, so general practitioners need to be constantly vigilant to be able to separate the wheat from the chaff (Shaughnessy *et al.*, 1994).

Concerns have been raised about pharmaceutical drug representatives. Drug representatives have been found to make claims about medication which is not supported by the approved product information and GPs were found to be unable to detect inaccurate statements (Ziegler *et al.*, 1995). Drug representatives are associated with inappropriate prescribing (Berings *et al.*, 1994) and with increases in the cost of prescribing (Caudill *et al.*, 1996, Watkins *et al.*, 2003). Gifts from drugs representatives, such as pens and other promotion material were found to be desirable (Thomson *et al.*, 1994) and GPs who accept samples are more likely to be early prescribers (Wazana, 2000).

Pharmaceutical representatives are a well used source of information on new medications. The increase in prescribing of new drugs seems to be greater than can be accounted for by an increase in patients with specific conditions for these drugs (McGavock *et al.*, 1993). Therefore have been found to influence prescribing (McGettigan *et al.*, 2001, Prosser *et al.*, 2003).

### 2.6.3 Patient

As mentioned in section 2.2.1.4 the patients views and opinions are important to the prescribing decision, and the GP should respect the patient's wishes (Barber, 1995). Patients have their own views and opinions; these will be shaped by their age, social factors, lifestyle factors and personal circumstances. It is now widely recognised that a prescribing decision should be

‘shared’ and made between the clinician and patient (Charles *et al.*, 1997, Murray *et al.*, 2006). Shared decision-making requires open information sharing on both sides (Snadden, 2007) and prescribing decisions are about integrating EBM with patient preferences (Barratt, 2008). Stevenson *et al* (2000a) study showed the majority of consultations ended in a prescription (66%) and although communication about medicines took place, shared decision-making rarely took place.

Patient pressure has been found to influence GPs prescribing (Virji *et al.*, 1991) but also there can be misunderstandings between GPs and patients (Britten *et al.*, 2000). In Britten *et al.*’s study all misunderstandings were associated with lack of patients’ participation in the consultation in terms of voicing their expectations and preferences or voicing of responses to doctors’ decisions and actions. Patient demand for prescriptions was over estimated and perpetuated by GPs wishing to maintain the doctor patient relationship (Stevenson *et al.*, 2000b). Patient pressure can be for or against taking medication and not always clearly expressed so doctors need to enquire about patient’s views when they are considering writing a prescription (Britten *et al.*, 2004). A GP’s perception of the patient’s hopes for a prescription was found to be the strongest influence on whether a prescription was written or not (Britten and Ukoumunne, 1997, Bradley, 1992a). The implications are that GPs need to explore patient views and preferences when taking medicines.

Patients’ expectations and anxiety of their presenting problem influences the GPs’ prescribing behaviour (Webb and Lloyd, 1994). GPs find it difficult to say no the patient when a decision is based on rationing, such as prescribing a generic or from the practice formulary, as this is in conflict with other important objectives of a GP (Carlsen and Norheim, 2005). There is a balance here between clinical, technical knowledge and good interpersonal skills (Howie *et al.*, 2004), which requires a good relationship between the GP and the patient. An important part of

patient involvement is a good relationship between the GP and the patient, often reaching an appropriate decision is not easy due to the large number of factors to take account of. The balance between patient-centred and evidence-based care may be difficult to achieve (Stewart *et al.*, 2003) and it is impossible to predict which patients will respond in an average or extreme way to a medication, and matching values and preferences to the evidence is a complex task (Snadden, 2007).

## 2.7 So why are quality prescribing decisions not always made?

This chapter has described the number and range of influences on GP prescribing and illustrated prescribing decision-making is a complex process. Prescribing decisions take account of social, psychological, physiological, political, economic, pharmacological and patient specific factors. The prescriber is “struggling to balance several disparate considerations and work out what to do for the best. There is a rationale; it is just not purely pharmacological” (Bradley, 1992a; 296). When it comes to changing professional practice there appears to be ‘no magic bullets’ (Oxman *et al.*, 1995) and multiple factors are involved in GPs decisions to change their prescribing habits (Armstrong *et al.*, 1996). It is widely recognised multi-faceted interventions are more likely to improve quality prescribing (Bertoni *et al.*, 2009, Prosser *et al.*, 2003), yet we still know little about why.

Many studies have looked at aspects of prescribing (Harris and Dajda, 1996, Cantrill, 2000, Britten and Ukoumunne, 1997, Britten *et al.*, 2004, Jacoby *et al.*, 2003) or specific drug groups (Jones *et al.*, 2001b, Hyde *et al.*, 2005, Evans *et al.*, 1995) or within a specific disease (Greenfield *et al.*, 2005, Dowrick *et al.*, 2000, Dowell *et al.*, 2001, Cranney and Walley, 1996, Kedward and Dakin, 2003, Kendrick *et al.*, 2005), yet little is understood about why practitioners behave the way they do (Checkland, 2007) and ‘what influences their prescribing

behaviour'. No study to-date has holistically looked at all influences on prescribing in primary care using ethnographic methods.



## METHODS CHAPTER

This chapter will explain the aims and objectives of the study, the underpinning methodology and the methods adopted. Through discussing the methods adopted the research will reflect on decisions made in the field.

### 3.1 Research Aim

The overall aim of the study was to explore what influences prescribing decisions in general practice.

#### *3.1.1 Principle research questions*

How are prescribing decisions made in primary care? What are the influences on these prescribing decisions and how do they exert their effect?

#### *3.1.2 Objectives*

- Investigate how prescribing decisions are made by general practitioners;
- Explore the main influences on prescribing in general practice;
- Investigate the influences that general practitioners recognise and do not recognise when making prescribing decisions and their perceptions of these;
- Describe Primary Care Pharmacists initiatives, exemplified by the programme operating in Tayside Health Board.

### 3.2 Choice of Methodology

As this investigation is attempting to describe and understand prescribing decisions, a qualitative study, utilising an ethnographic methodology was deemed the most appropriate design, as the researcher is interested in ‘how’ and ‘why’ prescribing decisions are made in primary care not ‘how many’ or ‘how accurate’.

#### *3.2.1 Why qualitative research?*

Qualitative research aims to gain a rich, in-depth understanding of human behaviour. By exploring the understandings and experiences of participants, and discovering how their social process, relationships, institutions work and the meanings these generate. Qualitative research seeks depth, context and richness, and usually explores small numbers to achieve this (Mason, 2002; 1).

Qualitative research is difficult to define as it has evolved from numerous disciplines and schools of thought (for example, interpretivist sociology, phenomenology and symbolic interactionism; anthropology; human geography; and education). Each of these schools of thought or disciplines has different ideas about what is important in the world, how it can be investigated and how we can illustrate this through empirical research. Qualitative research is therefore is not a unified set of techniques or philosophies (Mason, 2002; 2), but a wide range of methodologies and research methods. The distinctions between these different theoretical perspectives are not clear cut, which led (Denzin and Lincoln, 1994) to describe qualitative research as ‘defined primarily by a series of tensions, contradictions and hesitations’. However, although qualitative research is not prescriptive, it does have some core characteristics:

1. It is grounded in interpretivism, a philosophical position concerned with how the social world is interpreted, experienced, understood, or produced.

2. It is based on methods which are iterative, flexible and sensitive to the context rather than being standardised and contextually removed.
3. Qualitative methods are based on analysis and interpretation which develops understanding of complexity, detail and context; this emerges from the data rather than a predetermined hypothesis being tested (Mason, 2002, Pope *et al.*, 2000, Snape and Spencer, 2003).

The most common qualitative methods are participant and non-participant observation, in-depth interviewing, focus groups and the analysis of documentation, all which focus on speech and text rather than numbers. Silverman (1993) is critical of trying to identify core features of qualitative research, seeing it as not acknowledging the range of research strategies qualitative research can adopt. However, qualitative research is a research strategy which needs to be described to understand its nature (Bryman, 2004). Description is important in qualitative research as it gives context to the research to aid understanding. The researcher needs to articulate the methodologies and methods available and why certain choices were made for the specific project. Thus, it is through careful consideration, planning, through methods of data collection and analysis, and an explicit articulation of why certain decisions were made that qualitative research derives its rigour (Pope *et al.*, 2000).

### *3.2.2 Theoretical and Philosophical Framework*

How qualitative research is carried out depends on a researcher's ontology (the nature of the social world and what can be known about it) and epistemology (their view of the nature of knowledge and how it can be acquired), along with their research aim, audience and funders (Snape and Spencer, 2003).

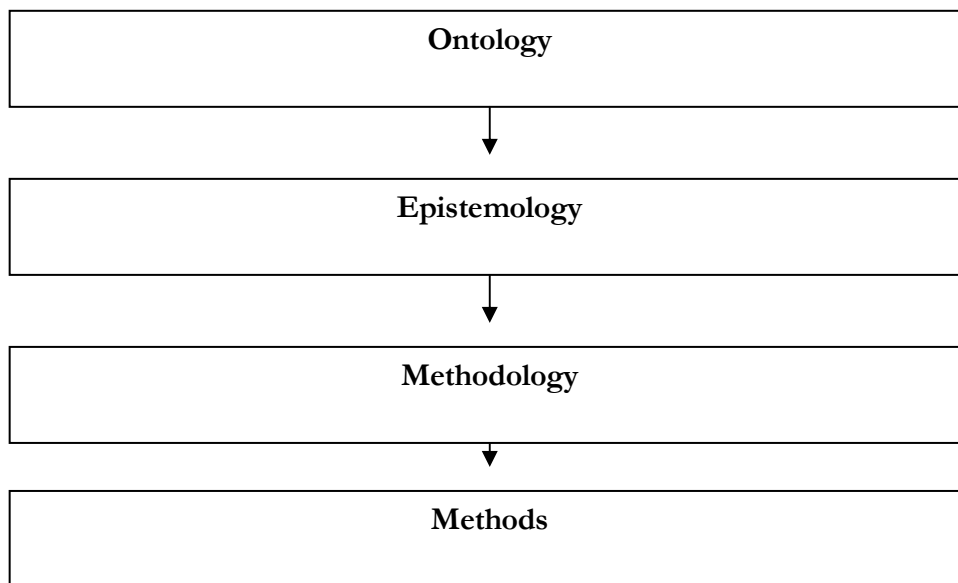
Ontology is concerned with what can be known about the world, what is the nature and essence of the social world (Mason, 2002; 14). “Within social research, key ontological questions concern: whether or not social reality exists independently of human conceptions and interpretations; whether there is a common, shared, social reality or just multiple context-specific realities; and whether or not social behaviour is governed by ‘laws’ that can be seen as immutable or generalisable” (Snape and Spencer, 2003; 11). There are three broad philosophical positions, realism, materialism and idealism, however, these have been continually debated and have established new terms which are less severe. What is important is that researchers cannot pick and chose bits of one and another; they have to engage and allow these philosophies to help guide decision-making (Mason, 2002; 15).

Epistemology is concerned with knowledge and the basis of knowledge. The main epistemological stances in social research are positivism and interpretivism. Positivism views the social world as governed by law-like regularities that can be investigated by objective, value-free observations (Snape and Spencer, 2003). The opposing view is interpretivism, which believes people construct and interpret their social world; they apply meaning to situations and are not governed by law like regularities. “Society is not presented as a fixed and unchanging entity, ‘out there’ somewhere external to the person, but is a shifting, changing entity that is constructed or reconstructed by the people themselves” (Brewer, 2000; 34). Qualitative research is grounded in interpretivism, examining ‘how’ people interpret their social world and the meanings they attach to phenomena. As the social world is not independent, the researched and the social world can be affected by their relationship to the researcher, and thus the researcher cannot produce an independent and objective account.

A researcher’s epistemological and ontological perspectives make up their theoretical and philosophical framework. “We should know how the social world is constituted, or what we

think it is (ontology) , shapes how we think we can know about it, but conversely how we look (the epistemology and methods we use) shapes what we can see” (Mason, 2002; 59). These assumptions influence the choice of methodology chosen by a researcher, which in turn provides legitimacy to the methods applied and the claims to knowledge generated.

Figure 1: Diagram of theoretical framework:



The researcher adopted a constructivist ontology and epistemology. By adopting this position the researcher accepts knowledge is socially and contextually constructed (Lincoln and Guba, 1985). “There exist multiple, socially constructed realities ungoverned by laws, natural or otherwise...these constructions are devised by individuals as they attempt to make sense of their experiences...constructions can be and usually are shared...this does not make them more real but simply more **commonly** assented to” (Guba and Lincoln, 1989; 86)(original emphasis). The central tenet of constructivism is what we understand to be objective knowledge is irreducibly the result of perspective (Schwandt, 1997).

### *3.2.2.1 Why an ethnographic methodology?*

This doctoral study aimed at being a piece of applied research to influence policy and practice. Applied research does not tend to apply as much concern to theoretical and philosophical assumptions and perspectives, as emphasis is placed on the kinds of data that can be generated from particular research methods (e.g. interviews and focus groups) rather than on particular epistemological positions. However, researchers need to be aware of these perspectives and how they can aid decision-making and help the researcher to be systematic and rigorous.

The researcher wanted to explore what influences prescribing from the perspective of the prescribers and not by a theory testing means. The ethnographic methodology is inductive, so the researcher should have an open mind and few preconceptions, to allow theory to emerge from the data. However, the researcher does need to know where to start and how to design the study, so does have some preconceived ideas and preferences (these are discussed in section 3.5.2.1).

### *3.2.3 What is ethnography?*

Ethnography is both a methodology and a method.

Ethnography is a methodology which allows the study of people and cultures in an in-depth manner, from their own perspective. It is about understanding the knowledge and experience of a group or community in context, representing and presenting their views in an objective and reflective manner to the outside world.

Ethnography is a very flexible methodology involving a range of qualitative and quantitative methods. However, the term is often used synonymously with qualitative research which does not help to establish a definition and thus has a tendency to ignore its mixed method strengths.

There is no defined set of methods to use; the researcher uses whatever methods suit the research question, however, these are always methods which facilitate studying people in naturally occurring situations where the researcher participates. Ethnography does have some core features: it uses several methods; has an iterative-inductive design (the research design evolves with the study and is not predetermined); involves observing and/or participating in people's lives or their work environment for an extended period of time, watching what happens, listening to what is said and asking questions; reflecting on your presence as a researcher on these accounts and also on your own written work. The result is an in-depth account, which has not been generalised and maintains the richness of knowledge and experience of the observed (O'Reilly, 2005).

#### *3.2.4 Why use ethnography for a study interested in prescribing?*

Prescribing decisions are complex; we don't really know how prescriptions happen due to the huge number of factors at play (see literature review for full argument) (Armstrong and Ogden, 2006, Greenfield *et al.*, 2005, Armstrong *et al.*, 1996, Bradley, 1991). Prescribing decisions consider social, medical and logistical factors, to name a few (Bradley, 1992a). Essentially there are two people involved, the patient and the prescriber and they have their own views and opinions. However, this insight is not new; the prescribing of medicines consumes a large part of the NHS budget and has been subject to extensive research, but this has predominantly been quantitative. Quantitative research investigates the social world in a way which emulates the natural sciences, by emphasising hypothesis testing, causal explanations, generalisation and prediction (Snape and Spencer, 2003). It generally uses statistical techniques to quantify the data. This is not to say that quantitative methods are unsuitable, they have their place but it is still not clear 'how' prescribing decisions are made. Thus studying treatment decisions in context will allow the researcher to appreciate the complexity of the decision-making process.

Primary care is multidisciplinary profession with prescribing decisions traditionally being made by GPs. Recent legislation has created nurse, pharmacist and allied health professional prescribers (The Scottish Government, 2010a, The Scottish Government, 2010b, The Scottish Government, 2007). The medical literature has focused on the importance of shared decision-making with patients, ensuring their views are taken on board when considering the best course of treatment. Prescribing decisions are commonly multifactorial and patient specific (for example, take account of evidence based medicine, the GP, community nurse and allied health professional opinions and take account of minimising risk and cost), so can only truly be understood qualitatively. Qualitative methods, in particular, ethnography, allows us to focus on local context and what is culturally specific and important to the primary care team. However, it also facilitates the study of the differences within the professional and social groups, the different accounts given by each role and the play of power within the group. “It regards the knowledge and practice of ‘experts’ as locally variable \_ as are the knowledge and practice of lay people \_ and it includes both within the boundaries of empirical enquiry” (Lambert and McKevitt, 2002).

### 3.3 Method

#### *3.3.1 Ethical approval and sponsorship*

An application of ethical approval was granted by Tayside Research Ethics Committee on the 10<sup>th</sup> November 2006. The University of Dundee accepted the responsibilities of sponsorship. (Appendix 1)

#### *3.3.2 Broad overview of study*

This is an ethnographic study of primary care prescribing behaviour, conducted in three Tayside general practices. All practices in Tayside were ranked using Audit Scotland quality prescribing indicators (Audit Scotland, 2003). Two practices which achieved a high ranking



and one practice which achieved a low ranking score were recruited. The primary research method was participant observation, which has been validated by interviews and practice documentation. Over 390 hours of participant observation was conducted in GPs surgeries, in scheduled practice prescribing meetings, chronic disease management clinics, and shadowing the reception staff, practice manager, practice pharmacist, nursing staff and allied health professionals. Informal interviews were ongoing during the period of observation to clarify any misunderstandings. Formal interviews with key members of staff were conducted after the period of observation to triangulate the research findings. Patients were invited by the practice to take part. The researcher was not interested in a specific group of patients or following these people up post-consultation so patients who had an appointment on day of observation were recruited and no identifiable data was recorded. Analysis was on-going and was used to influence the researcher's observations in the field. For each practice observation took place over six months in the first two practices and for four months in the third practice observed and contact was maintained for approximately one year with all three practices.

### *3.3.3 Sample*

This section is about how general practices were identified.

General practices are unique; they serve different populations and have different characteristics and cultures. By only sampling one practice the results of this study would have limited generalisability and external validity. By looking at more than one practice comparisons could be made leading to richer data, greater validity and more robust findings (Miles and Huberman, 1994).

The complexity of prescribing within practices and the time available meant it was not possible to gain rich data from a large number of practices. So purposeful sampling was deemed to be

the most appropriate. The plan was to recruit four practices with different characteristics; all the characteristics were not prespecified at the beginning to allow for the project to progress iteratively with the analysis. Responsiveness to indicators of prescribing quality was felt to be the most pertinent characteristic and by sampling extreme cases would lead to rich data which would be useful to a wide range of general practices. Practices which performed well against the prescribing indicators were likely to demonstrate best practice which is what we wish to enable to happen and practices which did not perform as well were likely to provide valuable insights gained by contrasting practices and their processes.

A purposeful sample of prescribing practices was identified through the PRISMS database (Prescribing Information System for Scotland). PRISMS collects prescribing data for all practices in Scotland, on prescriptions dispensed rather than including prescriptions which are written but not dispensed. National prescribing indicators for quality prescribing developed by (Audit Scotland, 2003) (appendix 2) have been used to rank all Tayside practices according to quality. These indicators were applied to one year (April 2005 – March 2006) of PRISMS data for all Tayside practices (72 at the time). Each individual Audit Scotland indicator is very specific, for example ‘Single diuretics as a percentage of single and combined diuretics’ or ‘Established antibiotics as a percentage of all oral antibiotics’. As each of these indicators is very specific taking all the Audit Scotland indicators of prescribing quality gives the best available measure of good practice, taking one individual prescribing indicator by itself would not be a good measure of a practice’s prescribing. It is commonly possible to justify why one practice is poor by one prescribing indicator, often there is a very good reason, however, it is more difficult to justify this across all the prescribing indicators (Dr Jan Jones, Prescribing Advisor, personal communication).

Prescribing indicators are used to foster quality improvement by establishing standards to monitor performance (Sheldon, 1998). The purpose is not to monitor performance for judgement but to highlight variation for further exploration as to 'why' they are different from the norm and for continuous learning and development. The aim is to promote quality and illustrate 'good' practice is desirable.

Practices which performed well were initially selected as they are more likely to consent to take part, would be more likely to allow access to the practice documentation and demonstrate best practice which is what we wish to enable to happen. With ethnographic research underutilized in health services research it was highly likely there would be misunderstanding of what is involved or suspicion the research is covert from practices which had performed poorly. However, after careful consideration it was felt that valuable insights could be gained by comparison of practices.

#### *3.3.4 Practice characteristics*

This section shows the different practices and their characteristics used in sampling decision-making.

The top ranking practice for prescribing quality was a single-handed practice with a list size of 2000 patients, in a rural and affluent area. As this not typical of Scottish general practices or their populations so recruiting this practice was deliberated upon, but as it was 'the best' it was felt there were important lessons there.

The second practice identified was a practice which did not perform well against the prescribing indicators (the second from bottom). It was an urban practice in a deprived area, with seven GPs, the majority of these working part-time. This practice has a list size of

approximately 8, 500 patients but due to their large student population this can vary by approximately 500 between term time and holidays.

The initial intention had been to recruit four practices, but as the project progressed and observation in both practices had proven to take longer than planned for different reasons. The lack of experience of the researcher and the lack of processes assumed to have taken place in the first practice recruited meant the observation took longer than planned, and in the second practice, with the majority of part-time staff and lack of systems and formal processes also proved problematic. Thus it was only possible to recruit a third practice. The characteristics sought for the third practice were more generalisable to the Scottish general practice population; their list size, number of partners and their population. Also the majority of the practice partners worked full-time which would facilitate the research.

The third practice identified was within the top five for prescribing quality, it was a four partnered practice, with a list size of 5, 800 patient, in a small town and three of the four partners work full-time.

As the third practice recruited was more typical of general practice characteristics, this practice is described first in the results section of this PhD. Thus the order in which the observation took place was out of sync for writing and referring to the practices as one, two and three became complex so fictional names have been given to the practices to aid reading of this study.

### *3.3.5 Sampling within cases*

In ethnography the researcher desires to observe every activity that is taking place and be a fly-on-the-wall, particularly with non-participant observation. Participant observation demands that

the researcher becomes not just a fly-on-the-wall but an active participant in that social world. Thus the ethnographer's understanding of that context can also be developed through becoming part of that social world alongside 'being there'. However, this is often not possible, particularly in professional working environments such as general practices so the researcher has to decide what activities they are going to sample. Here the researcher has tried to show the sampling decisions which had to be made on a day-to-day basis and the rationale for these decisions.

In each general practice there are a number of activities which are directly prescribing related such as consultations and clinics with patients and visits from drug company representatives. Prescribing by different members of staff; GPs, practice nurses, community nurses and practice pharmacists in varying situations. By only observing activities where prescribing could be taking place would mean the researcher could miss valuable information which is prescribing related. Reception and the coffee room were observed intermittently every day and the practice manager was shadowed for a day in each practice. Participant observation was carried out at different times of the day, different days, trying as much as possible over a few months to try and experience as much as possible.

Even on days when what was observed had been arranged in advance, circumstances changed as each day progressed. Systematic sampling within cases was not possible and numerous decisions had to be made on the spot. Decisions were made on a day to day basis, who to observe, what to say, what to ask, what to write down. In the early days of observation in each practice the less invasive approach was selected but as rapport was built and the researcher's understanding grew it became easier to ask, or to be expected, to observe the richer or more subjective data. In the rural practices they seemed to see purpose in visiting the practice for a whole day so less negotiation was required for observing informal interactions. However, as the

urban practice was so central in location the staff seemed to think that I would have something more important to do and did not present as many opportunities, therefore continuous negotiation was required.

### 3.4 Recruitment and Informed Consent

Recruitment is covered in four sections; recruitment of the practices and then of the patients and of informed consent, staff and patients.

#### *3.4.1 Practice recruitment*

Recruitment of practices had the potential to be problematic; as ethnography is under utilised in primary care it was highly likely that the research intention could be misinterpreted and perceived as a quality assurance process. Fortunately, all practices had a relationship with the researcher's department.

##### *3.4.1.1 Rosnish*

'Roshish' was the first practice recruited and this was straight forward. This practice has an established relationship with the Tayside Centre for General Practice and the GP is a personal friend of one of the researcher's supervisors (FS). Thus FS contacted the GP by telephone to inform him of the study, why his practice had been selected and to ask if he would be interested in taking part. Subsequently, the researcher and supervisor (JD) visited the practice and had an informal meeting explaining what was involved. As the GP was happy to take part, information sheets and consent forms were left for the other members of staff. Informed consent was received from all staff before the research began.

##### *3.4.1.2 Haun'*

Approaching a practice which had not performed well against the prescribing quality measures had to be done with caution. The practice which had the lowest ranking had a different

organisational structure from the norm (running personal lists) and with the second lowest practice having a more standard organisational structure and strong links with the Tayside Centre for General Practice (a GP at the practice is also a teaching fellow at the department), this practice was approached first through the GP teaching fellow. This GP was aware of their practice's poorer performance and thought as a result the practice would be interested to hopefully enable them to improve their prescribing. As this is an academic GP the risk of misunderstanding what is involved in an ethnographic study was reduced. The GP teaching fellow established that most of the GPs agreed in principle, so the researcher went and met with the practice manager. She was very cautious and found the lack of a specific timeframe and the flexible nature difficult to grasp. The researcher spent time trying to explain the project and left information sheets and consent forms and with the practice manager. After a couple of weeks the researcher met with the practice pharmacist and two of the GPs at the practice, where she did a small informal presentation and answered any questions. All members of staff agreed to take part and informed consent was received before any participant observation took place.

#### *3.4.1.3 'Rubain'*

Recruitment of the third practice was opportunistic. This practice also had strong links with the Tayside Centre for General Practice. JD was at the practice for a meeting, where he informed them of the study, why they had been selected and asked them if they would be interested in taking part. Provisionally, they were agreeable. However, they were looking for more information about what was involved. The researcher went out to the practice and gave an informal presentation to the partners and the practice pharmacist. The practice manager contacted the researcher a week later stating that everyone was happy to take part and with a time table of when to visit the practice. The practice manager collected informed consent from all members of staff before the researcher's first visit.

The Tayside Centre for General Practice's strong links with the practices was fundamental in recruitment. These practices were open to listening to the research proposal and what was involved, which might not have been the case in other practices. The research project was designed to have minimum impact on the day-to-day running of the practice and as the researcher was the data collection tool there were not additional tasks for the practice staff to do (apart from handout patient information sheets and consent forms).

#### *3.4.1.4 Informed consent*

Informed consent was collected from all practice staff before the observational period at each practice began.

#### *3.4.2 Patient recruitment*

Consultations with patients show prescribing decisions made in context. By observing these the researcher was able to gain a handle on the aspects of the decision-making process such as the patient's perspective and the doctor-patient relationship. The process of recruiting patients is described below.

Recruitment of patients in all practices took a similar process:

- Patients were invited by the practices to take part. Due to the fact that practices are strongly encouraged to offer a patient an appointment within 48 hours meant it was virtually impossible to post out an information sheet and consent form in advance. All patients are offered an appointment within 48 hours now as part of the nGMS contract (Health and Confederation, 2003).

- Receptionists invited the patients to take part when they reported to the reception desk. The receptionists gave the patients a brief description of the project and an information sheet and



consent form. All receptionists were all briefed about the project by the researcher and given the opportunity to ask any questions.

- In Rubain and Rosnish posters were displayed in the surgery informing patients of the study. In Rosnish copies of this poster were also displayed in the village community pharmacy and post office. (Appendix 3).

- The health care professionals (GPs, practice nurses, community nurses or practice pharmacists) checked with the patient that they knew they were taking part in a research study and confirmed the researcher was observing them and not the patient. Consent forms were collected from the patient, when they entered the consulting room.

- After the consultation the patient was offered the opportunity to withdraw consent at the end of the consultation but no one took this up.

The majority of patients who were invited to take part consented and did not withdraw this consent. In the Haun practice, one GP tended to see more patients with psychological problems and a large number of these patients did not consent. The researcher sat quietly at the back of the consulting rooms and only spoke if spoken too. No notes were written in front of the patients.

### 3.5 Empirical Field Research and Reflections

An important part of any ethnography is to be reflective so the researcher can be aware of their impact on the research setting and findings. Researchers are central to the project and thus shape the data collection and interpretation. The research is a product of the relationship between the researcher and their participants so a different researcher could unearth a different story (Finlay, 2003). To enable the researcher to reflect on her influence which is difficult to do

in the third person the remainder of this chapter will be written in the first person, in keeping with an ethnographic methodology.

### *3.5.1 Access*

In this study recruitment and access to each practice were separate issues. Accessing the data the researcher was interested in took time; this was a period of relationship building and gaining trust and respect. Each practice was different and each experience is described below.

#### *3.5.1.1 'Rosnish'*

Recruitment of the first practice was relatively easy and went smoothly, particularly as it was single-handed but access to the information I sought was not so easy. It was an unnerving experience for me, the GP and his practice staff. This was the first time I had undertaken any observational field work so I was unsure, nervous and learning as I progressed. Initial visits were directed by the GP, where he had thought it would be good to review the practice documentation and to get a handle on the practice systems. However, this led to me asking too many sensitive questions about finance and quality improvement which was far too sensitive too quickly and helped breed some suspicions early on. As soon as the sensitivities became apparent reviewing of the documentation was stopped and observation of reception commenced. In the first few weeks everything had to be negotiated with the GP, who acted as gatekeeper to his practice.

As all members of staff at the surgery were aware of the purpose of the research, the uneasiness and wariness by the GP is it is natural. Scott (1985) describes the feelings in this initial period very well, "You can both feel and appear very strange, the early stages especially are filled with a mixture of elation and, depression, missteps and drudgery that any anthropologist will recognise." In the early stages I felt like I was threatening the GPs control. Although a research

orientated GP who knew what the term ethnography meant, he had not really thought or understood what it would be like in his practice. Coming from a medical background, from the positivistic paradigm the open, incidental and flexible nature of ethnography seemed foreign to them. Negotiating access to areas which were not directly prescribing related was problematic, it was hard for all the practice staff to understand why I would want to observe them carrying out these tasks. To negotiate access I had to demonstrate I knew enough about the subject area to justify why I would want access and to generate discussion but not to show too much knowledge to make it seem pointless. These discussions were crucial in the relationship building stage of the research. It is through these discussions I learned the boundaries of what was acceptable and unacceptable and learned more about their personalities. After a few weeks of careful negotiation and relationship building all the practice staff became used to my presence and constant inquisitive nature.

After my initial period of unease at the practice I was treated more as a member of the team, although I did inform the GP of what observation I was undertaking. The practice staff were used to me being around and I was much more comfortable in what I was doing. I was accepted and trusted, had gained access to their thoughts, they were no longer giving me the politically correct answer and were now openly discussing issues in front of me, eventually asking my opinion. I was given the freedom to come and go without being asked what I was doing, the conversations were more natural, with personal information exchanged. The practice openly discussed sensitive issues in front of me. I felt I had become more of a participant than observer.

#### *3.5.1.2 'Hann'*

When I started my field work in the second practice I was much more confident with myself; I was familiar of what I was there to do and how to go about this. I knew how to dress and act,

but I had also gained a lot of understanding about how general practices operate, the jargon, acronyms, and many of the pressures placed on each member of staff. I was also much more acquainted with the drugs being prescribed and what they were for. From my experiences from Rosnish I knew observing reception was a good place to start.

Building relationships takes time, but by spending time in reception I was introduced to everyone and people got used to me being around. I did not have to report to anyone about what I doing, but I had to arrange to observe someone every day before entering the building, as the practice manager frequently asked me who I was observing today. The negotiation of access meant I could not spend all day everyday at the practice. As in Rosnish, it was often difficult for them to understand why I would want to be watching the mundane, particularly when it was not specific to prescribing. My visits to the practice were planned so that I did cover each day of the week and at different time periods. Despite these efforts, I did not achieve the same level of intimacy as I had in Rosnish due to the practice characteristics, such as the majority of staff being part-time, the extensive use of IT for communication, the laid back culture and the fact that prescribers did not linger in the coffee room. As most of the staff worked part-time and behind closed doors I could go for long-periods of time without meeting some members of staff. I had acceptance but not as much proximity and rapport as I desired. My relationship with each member of staff was not fluid and built up over regular contact. I would build rapport when observing one GP but then could end up going long periods of time without seeing them, feeling I lost what rapport had been built. This led me to feel like I was receiving the 'politically correct' answer to my questions.

As practice formularies are established through collective decision-making I had assumed that the GP's prescribing behaviour would be socially constructed through practice meetings. But in this practice, one GP meets with the practice pharmacist and their decisions and issues are

circulated by email, thus I never saw all GPs at a meeting together. This is not to say it does not happen. I was aware of more pressing business issues dominating the partners meetings, (which meant I could not attend these). Prescribing issues could have been raised at these meetings.

My gatekeeper and informant was the practice pharmacist; she was not a formal gatekeeper in the traditional sense, it was more of an informal role. She had been very supportive of my research at the practice before they agreed to take part and I was reliant on her goodwill for much of my access to data and to the practice staff and prescribing documents. We built a good relationship where I felt there was trust, openness, rapport where she kept me up to date with the developments in the practice, thus, I had full access with the practice pharmacist.

Building a relationship with the practice manager was also very important in gaining access to the practice and being free to come and go as I desired and not driven by the practice. Due to the nature of her job she was interested in what I was doing, we developed a relationship where she trusted me enough to freely come and go but not enough to be completely honest in sharing her views and opinions. The GPs eventually got used to me being around but due to the organisational issues maintaining a relationship was impossible, thus I felt I was not around them enough to observe their natural behaviour and not to receive the 'politically correct' answer.

My time at the practice came to a natural end; I was not observing anything new in the areas I had access too, the staff were asking how much longer I would be there and I felt much more time and effort was required to gain access to the 'hidden' data. During my time at this practice they were under financial pressure and as a result had private meetings among the partners. Only one partner made me aware they were having 'issues' and gave a brief explanation. This

had explained all the closed door meetings and whispering but left me unsure if there was data I missing. My greatest concern was that important prescribing issues could have been discussed at these meetings whilst all partners were present, as it was an opportune moment. As most staff seemed to feel uncomfortable mentioning these meetings to the ‘outsider’, it felt inappropriate to ask if prescribing issues were discussed. I was constrained by time and resources and had to accept I was more of an observer than participant. However, by maintaining contact with the practice pharmacist I was invited back for significant events.

#### *3.5.1.3 ‘Rubain’*

On arrival, I had experience of observing practices for over a year thus I was more self-confident. I was more knowledgeable of practice systems and cultures and as a result how to behave and dress, and of terminology and acronyms. In turn, the participants were thus more at ease with a researcher who was familiar, confident and focused.

My initial visits were controlled by the practice manager who put together a rota time tabling my first month. She had assumed I would only need a month, which meant my initial time in the practice was not as uneasy as it did not involve as much negotiation as had been the case in the other two practices. The rota had me at the practice for whole weeks which was excellent for getting to know people and building a rapport, particularly as most staff was full-time and all members of staff regularly use the coffee room throughout the day. However, this rota also had a controlling nature, it reinforced the fact they thought I was there for a short period of time and did not really allow the freedom desired. As mentioned in the section ‘sampling within cases’ it is important to be flexible and to adapt to issues as they arise. By having a rota I did not negotiate access in the early stages like I had in the previous practices but later in my observational period and with the practice manager, not the GPs themselves. This did not allow the observation to flow and naturally progress. Gaining access to practice documentation was

not as easy as it had been in the other practices. Despite having consented to take part and allow the researcher access to the data the practice support staff were not keen to show the researcher data although the GPs seemed to have no issue with sharing this information.

The observational period at this practice was abruptly stopped as the researcher had an accident and damaged her knee, which resulted in her not being able to walk or drive for 6 weeks. During this period of time I carried on with my analysis and felt I had sufficient data. I did return to the practice to interview key members of staff, which also gave me opportunity to speak to the other members of staff and more appropriately exit my field work and time with the practice.

### *3.5.2 Participant observation and the role of the researcher*

The distinguishing feature of ethnographic research is usually participant or non-participant observation. Being a non-clinician allowed the researcher to come with an open mind and no predetermined questions but with a focus on what she was interested in. This allowed her to observe, review and reflect and explore, often in areas that were not expected. By spending an extended period of time in the practices, the researcher was seeking to better understand the meaning of events and relationships, and the incentives and pressures each practice and general practice as a whole are under. As I came to understand more, I had fewer questions and was able to test my knowledge in conversations with participants. Participants came to ask for my opinion.

Participant and non-participant observation mean very different things for the researcher. Participant observation is about getting involved, being one of the group and being completely immersed. Non-participant observation is to be completely separated from the group's activities, such as observing video-taped consultations. However, there are varying degrees of

participation on a continuum; only certain types of research questions involve rigorously sticking to one or the other. Researchers often decide on their level of participation but then the extent of their participation changes over time as the project progresses and relationships change (Patton, 2002).

In all three practices I was never completely a participant, as I am not a health care practitioner. As an outsider I had an 'etic' perspective; I did not have the assumptions and biases a health care practitioner would have but had other assumptions which are discussed below. An outsider's view allows for more accurate comparisons and more of an analytical perspective. GPs operate a strong professional network, there is a real empathy among fellow clinicians, and as one GP put it 'one of us'. The practice pharmacists are close to this network and are given a high degree of professional respect and trust but they are still outsiders. As a result of this I could never go 'native' and have 'real' access and thus be a complete participant.

#### *3.5.2.1 Prior assumptions*

Prior to commencing my field work, primarily through reading the literature I had come to make some assumptions, which are listed and discussed below:

- Practice policy prescribing decisions were made in practice meetings by all prescribers;
- The practice pharmacist was fundamental in formulating and influencing prescribing decisions;
- I had assumed more influence on the GPs prescribing behaviour from the pharmacists and community nurses and less from the practice nurses;



- Gabbay and le May's (2004) paper on mindlines had aided my research design and heightened my awareness to the importance of interaction. As my research developed this paper helped me conceptualise my findings by identifying the differences in findings between what they found and I found.

### *3.5.3 Data generation and relations with participants – my reflections*

Ethnography is by its nature is an interpersonal and shared experience between the researched and researcher. This section attempts to represent the field relations through discussing data generation. I have chosen the term 'data generation' rather than 'data gathering' to highlight my active role in the research process.

Data was generated from a number of sources: participant observation, informal conversational interviewing, and formal interviewing and practice documentation. I was particularly interested in the behaviour of GPs and their interactions, between themselves and the practice staff, and their accounts of their behaviour. As much prescribing decision-making is now by practice I was interested in their individual and collective understandings and interpretations. Examining their perceptions of their actions and justification of this was fundamental to explaining their prescribing behaviour.

By seeking to explore the behaviour, perceptions and understandings of participants in their work place setting it was important to describe the relations that were formed during this period and to what degree trust and respect were mutually established. It is important to try and describe these working relationships and interactions in context.

Relationships were formed over a period of time; where participant observation was conducted regularly in 'Rosnish' for 5 months, in the Haun regularly also for 5 months and conducted in

‘Rubain’ intensively for one month and then regularly for 1 month after that. By regularly I mean at least once a week, and by intensively, all day, every day. These interactions formed the majority of my data which was reliant on the relationships established over these time periods (over 390 hours of observation was conducted in the three practices). The contact which was maintained with the practices after the period of observation was hugely dependent on the strength of these relationships.

My role was to understand the behaviour, experiences and interactions of the practice staff in three different practices. The quality of fieldwork and thus the data generated is dependent on my experiences of the field and the relationships established and maintained. In each practice I had a gatekeeper who was also my key informant and these were who I developed the strongest relationships with. Personally, it was important for me to have a good rapport with all the participants in the project however; it was not possible to develop every rapport into a relationship with trust and respect. As a result I was reliant on key individuals in each practice and could not afford to lose their friendships.

Relationships are established through building rapport and trust, as it was my work that suffered, the onus was on me to work at building and maintaining these relationships. Access to the practices and the foundations of these relationships are discussed in section 3.5.1. Finding a balance between engaging and participating and being analytic and objective was extremely difficult particularly in Roshish. In Rubain and the Haun I had come to know some of the norms and was more relaxed. Yet, these practices are the gatekeepers of patients’ healthcare and had already given me access to their practice and patients, gaining access to their thoughts and understandings had to be earned.

Building relationships was reliant on the participants willing to do so and I found all the practice staff in the each practice receptive. However, in the Haun I found maintaining the ties and rapport very difficult, due to the number of part-time staff and as most of the GPs did not linger in the coffee room. My relationship with the practice pharmacist, my key informant was instrumental in fieldwork and data gathering. Naturally, as the practice pharmacist with a role of influencing prescribing I would spend a considerable amount of my fieldwork time with her. However, we did genuinely get on, we shared similar interests, and over time our interactions developed into us sharing some personal stories and emotional feelings.

Finding similar interests was important, it made the relationships less fragile as they were not just about the project and fieldwork, and these discussions helped build a relationship, establishing more than a rapport. I ensured on every visit to spend time chatting with the practice staff and finding common interests to maintain communication through the duration of the project. After the period of intense observation, communication with the practices was maintained through email but, unfortunately, this was with only one member of the practice team. On return visits to the practices it was obvious the relationships and rapport had been lost with everyone apart from my email contact. In Rubain my contact was the practice manager, in Rosnish the lead GP, and the practice pharmacist in the Haun.

My key informant and email contacts were my main source of access to the data. In Rosnish was the lead GP. I was constantly aware he liked to know what was going on at all times and thus was aware when I was with other members of staff. Gaining his trust and respect was fundamental to understanding why this practice had performed well against the prescribing indicators. Finding common interests was important and being patient, not asking too much too early on and being sensitive to the situation. On one occasion I went out with the whole practice for dinner to a local hotel where we met my friend and her family. As this is a rural

community they knew my friend's family, which gave them an insight into my life which was not self-reported. Until this point I had not been aware of how much trust and respect I had expected of them. This night felt like a turning point in building a stronger relationship.

In practices Rubain and Haun I found reciprocity difficult, but particularly in Rubain. I was asking a lot of questions about their practice, their behaviour, their beliefs and norms with little in return. These practices knew I had been at other practices before so asked about what I had experienced and observed. They were interested in the other practices systems and processes. I felt there was a real imbalance. Ethically I was not at liberty to share any information but yet, I needed share some of my experiences and demonstrate some knowledge to gain access to their experiences and understandings. I would share some information and tried to keep the practices anonymous.

As these relationships developed I became more acutely aware of the dichotomies of ethnography: involvement versus detachment, stranger versus friend, distance versus intimacy. "The friendships we experience are part of the contradictions and ambiguities that denote the essence of fieldwork. Friendships can help to clarify the inherent tensions of the fieldwork experience and sharpen our abilities for critical reflection" (Coffey, 1999; 47). My fieldwork and these relationships were on a commitment from both sides, albeit for different reasons. As a doctoral student researcher my commitment was due to an interest in the field and to completing my PhD. For the practices which had performed well against the quality measures it was a commitment to evidence based medicine, altruism, sharing their knowledge and maintaining good relationships with the academic department. For the Haun taking part was to maintain good relations with the department and improving the quality of their prescribing.

The reason for the relationships is the fieldwork, but this does not distract from the nature of these relationships (Coffey, 1999). But there is contention between these friendships; I was researching looking for information and they had information they want to 'hide' or to present in a favourable light. Despite efforts to build a good rapport emphasis was always on observation rather than participation. I could not completely immerse as I do not have the training to fully participate. As a result the practices were unlikely to forget that they are being researched, I tried to disrupt the practice as little as possible, by being sensitive to the setting and the issues as they arose. I allowed myself to be directed to help build rapport and try and reduce the fear of being 'spied on' and to try and get staff to act naturally. I ensured I was dressed in a similar manner to the female staff not in uniform, which was usually the GPs and practice pharmacists.

I managed to fit into each practice and found everyone open, receptive and approachable. However, I only really felt like I knew two people well enough to know if I was really getting a genuine reply. Maintaining email contact and the occasional visit with these two people a year after fieldwork had finished was a real testament to the quality of the friendship and to their commitment to the project. At the end of my time of fieldwork in Rosnish was a sad occasion for me and for the practice staff. They had got used to me being around, with this being a small practice they enjoyed the extra social interaction and they genuinely did not want me to leave.

#### *3.5.4 Confidentiality*

Fieldnotes were stored securely on the University server and password protected. No identifiable data was recorded about patients; the staff at all the practices was given a code, to try to make the data as anonymous as possible. Particularly in Rosnish, being small and single-handed it is not possible to make these fieldnotes anonymous. This was explained to practices and they were given the opportunity to make the researcher aware when they would not like

data recorded. All consent forms were stored in a secure cabinet in the Tayside Centre for General Practice, The University of Dundee.

### 3.6 Supporting Data Collection and Management

Participant observation was the main method of data collection, but should be supported with other methods (Brewer, 2000). This section will describe the supporting methods and how data generated was recorded and stored.

#### *3.6.1. Fieldnotes*

Fieldnotes were typed up as soon as possible after the observational period, usually that evening or the next day. During the period of observation time constraints meant often there was not an opportunity to write detailed notes, just keywords and abbreviations only comprehensible to the researcher. As by ethical approval the researcher did not write anything in her note book in front of the patients. These notes were written once the patient had left the room and while the GP, nurse or pharmacist was typing their notes after the consultation. This was when the researcher was able to ask questions to clarify her understanding.

In the early days of the research the researcher wrote very detailed notes covering every detail in each consultation. This proved to be a very time consuming and laborious process. As time progressed, the researcher realised she was writing too many clinical notes and not enough description about language, body language, relationships, patient views, to name a few. This study was not an audit assessing the quality of their prescribing but how they prescribe, not what they prescribe. The researcher became more sensitive to the setting and to the concepts which were proving to be important and thus the study became more focused. In Rosnith the researcher noticed that the GP's knowledge and relationships with his patient were important to his prescribing decisions, so the researcher became more sensitive to continuity of care issues.

Eventually, the researcher was satisfied there was sufficient data to justify this claim and became more sensitive to other issues, in this case the relationship, trust and influence of other health care staff working in the building.

Reviewing the literature as an ongoing process which allowed the researcher to consider other issues. It is very easy when in the field to become focused on a narrow range of issues and only 'see' these issues when observing. Reviewing the literature allowed the researcher to become sensitised to a wider range of issues. First supervisor, JD, was also instrumental in ensuring the researcher did not become too focused on one area.

### *3.6.2 Interview Data*

Two different types of interview were conducted during the study period; opportunistic interviews and formal, scheduled interviews. The formal interviews were conducted after the period of observation.

#### *3.6.2.1 Opportunistic interviewing*

Most of the interviewing was on-going during the participant observation, as questions arose in context. This is often referred to as opportunistic interviewing (O'Reilly, 2005) or informal conversational interviewing (Patton, 2002). However, the nature of the general practice setting meant the researcher felt many of the answers to her questions were not thought through due to time pressures. Especially when observing consultations there was the next patient waiting outside or when in reception, a member of staff would be giving an answer but then a patient would appear at the desk so the answer was cut short. Often the issue was returned to at an opportune moment but the observed often could not remember the specifics of the situation, or if in a group scenario it is harder to ask questions. The researcher felt it was better to take people aside and ask them questions away from interruptions when a time and place was set

aside to really have time to get at what they mean. As well as looking for depth the researcher was also using the arranged interviews as an opportunity to fill holes in the data discovered through analysis, to explore their thoughts, meanings and ideas and to validate the model developed.

#### *3.6.2.2 Formal interviews*

Nine semi-structured interviews were conducted with key members of staff in each practice after the period of observation. These 'key' members of staff had a strong interest in prescribing or were influential in the practice. In Rubain, interviews were conducted with two GPs; in Rosnish, with the lead GP, the senior receptionist and the practice pharmacist; and in the Haun with three GPs (the full-time GPs and a part-time GP) and the practice pharmacist. All interviews were conducted in their general practices; they lasted approximately an hour and were audio-recorded and transcribed verbatim. The topic guide used in the interviews is provided in appendix 4.

A few core questions were asked to each respondent and specific questions were asked relevant to each practice and their role within the practice to allow a deeper exploration and to triangulate existing findings. Once the researcher was satisfied she had explored the topics in sufficient detail she showed the interviewees the prescribing model devised for each practice and asked for comments. As the researcher already had a rapport with the interviewees, they were at ease and the researcher felt she obtained a more genuine answer. The researcher was interpreting their responses during the interview but these were consistent with the findings from the observation so were used to gain a richer understanding.



### *3.6.3 Practice Documentation*

A number of practice documents were obtained during the period of observation. These were mainly copies of policies, protocols, procedures and copies of evidence or CHP policy which had influenced their behaviour. The information surrounding these was written up in the fieldnotes but copies of the documentation were filed and stored in a securely locked cabinet in the Tayside Centre for General Practice as they provided greater detail to the fieldnotes.

### *3.6.4 Computer storage and software*

The fieldnotes were stored on a password protected laptop and backups were stored securely on a university server. The fieldnotes were imported into a computer software package, Atlas.ti 5.2 specifically designed for qualitative data storage and analysis.

## **3.7 Analysis**

Initially a descriptive approach was adopted to gain an understanding of the practices, context and influences on prescribing. An interpretative approach was then adopted to help explain and understand the similarities and differences between the three practices. Finally, to gain a deeper interpretation and explanation of the data three sociological theoretical models were used. This is a broad overview of the analysis in this thesis and the following section will give a much more detailed description of the analytic process. Initially the author describes how she came to her analysis approach.

The ethnographic literature gave no clear direction or prescriptive rules as to analysing this messy and complex data. As ethnography is so diverse “the analytical process varies slightly in the different types of ethnography” (Brewer, 2000; 107). The ethnographic literature did have some core recommendations which were followed; coding, organising into patterns, categories and concepts and looking for relationships between them (Brewer, 2000, O'Reilly, 2005). A

number of texts had described ethnographic analysis to be similar to ‘analytic induction’ or ‘grounded theory’ however, it was difficult to conduct grounded theory due to the nature of ethnographic data. Grounded theory requires counter cases to revise the hypothesis and return to the field (Brewer, 2000, Hammersley and Atkinson, 2007). I struggled with Strauss and Corbin’s (1990) text on grounded theory; however I found their techniques of constant comparison, flip-flop and red flag useful. After some time I discovered Charmaz’s (2006) text which suggests incident comparisons rather than line-by-line coding and relies on memo-writing for interpretation which suited my data and means of working. This was a turning point in my analysis and I was comfortable in my modified method of grounded theory. However, I felt I could not call my analysis ‘grounded theory’ as I was using their techniques to describe, explain and interpret rather than to generate a theory. Due to time pressures it was clear I did not have time to revisit the field to test and saturate the emerging analysis. After a lot of reading and trial and error I came across ‘Interpretive Description’ (Thorne, 2008), which described an applied analytic method very much in line with what I had been doing, at last I had my label!

### *3.7.1 What is interpretive description?*

Interpretive description is a qualitative methodology which seeks to generate empirical knowledge about complex phenomenon for depth and contextual understanding (Thorne, 2008). The philosophy behind ‘interpretive description’ is to use appropriate applied methods to answer meaningful questions. Thorne (2008) advocates borrowing from the tenets of grounded theory, phenomenology and ethnography to answer applied research questions which do not always fit the methodological rules of sociology, psychology and anthropology.

Description is useful for knowledge development and provides important contextual information but it does not answer the question ‘what does this mean?’ Interpretive description “seeks to discover associations, relationships and patterns within the phenomena which has

been described” (Thorne, 2008; 50) and searches for underlying meanings which might shed light on what is happening and develop a deeper understanding, in this case of prescribing decision-making. Interpretative description is not formulaic and structured like grounded theory but creates a framework with which to follow; ‘pieces to patterns’, ‘patterns to relationships’ and ‘data analysis at play’. To ensure rigour and to avoid methodological eclecticism, this study is strongly orientated with ethnography and a detailed account of the analytic process is given below.

This section will describe my analytic process in light of ‘interpretive description’.

Analysis of the data started when the field work commenced. The analytic process was not distinct from data collection and writing but is described as such for the purposes of this chapter. Analysis was the process of managing, organising and interpreting the data in a comprehensive, systematic and rigorous manner (but in one which is not rigid). This section will show how the large amount of complex data generated was organised into categories, patterns and relationships. Firstly, it is important to discuss the nature of this data.

### *3.7.2 Nature of ethnographic data*

Ethnographic data by its nature is subjective, chaotic, and complex. The data gathered in this study came from a number of sources; fieldnotes, interview data, practice documents, memos, and the researcher’s reflective diary.

Fieldnotes, memos and the researcher’s reflective diary are products of observation, which are selective. As Miles and Huberman (1994; 56) describe “the researcher is constantly making choices about what to register and what to leave out.” It is impossible to record everything that happens in the field so the researcher has to be selective and as a result the data will always be

incomplete or partial versions of the observation. As well as what is being recorded, it is how the observations are being recorded that subjects them to further interpretation. As mentioned above the detailed fieldnotes were typed from scribbles taken during the day. The fieldnotes being typed by the researcher are inadvertently being interpreted. The notes taken in the field are not structured; they are messy as life in a GP practice is not orderly and structured. The GPs were often doing more than one task, utilising data from more than one area, and being interrupted. The researcher typed these notes into a more structured and logical fieldnotes and in doing so was interpreting as well as organising the data. Coffey and Atkinson (1996; 9) claim “..there is no such thing as pure description, it takes a human observer to accomplish description”.

As it is impossible for the researcher to record everything that happens in the field it is important that what is recorded and used as data has the same meaning as it had for the participants in the field. The researcher must ensure the data retain its context and the complexity of meaning (Brewer, 2000). However, as what has been observed has been interpreted through me, these are my accounts of what has happened, not the participants.

### *3.7.3 Coding of data*

Coding of the data was an on-going, continuous task which ran simultaneously with data collection. Initially, the fieldnotes were imported into Atlas.ti and assigned codes. These codes were developed through reading and re-reading the field notes and asking ‘what is this about’. At this stage this was very open and exploring what was in the data, starting to structure it and organise it for data management.

As more data was collected and coded, the codes changed and more were added. The coding was an iterative process which progressed with the data collection. Through this iterative

process the researcher's understanding of the setting, its language and processes were developing. Codes were a mixture of 'in-vivo' codes and codes developed by the researcher; 'in-vivo' codes are recurring phrases used by the participants in the field. In ethnography the emphasis is on action, what people do and why so it is important to understand socially shared meanings and the esoteric knowledge, which is why a mixture of 'in-vivo' codes and codes derived by the researcher were used. The definitions of the researcher developed codes had evolved inductively and their definitions became clearer and tighter as collected data was included and excluded in analysis. Commencing data collection and analysis in a new practice generated new codes which involved re-reading the fieldnotes to search for these new codes.

The 'constant comparison' technique of grounded theory was useful in exploring the codes, generating new ideas and tightening definitions. I found the line-by-line coding suggested in grounded theory unhelpful for analysing my fieldnotes. These had already been interpreted by me and written in a coherent fashion, often I tried to include contextual information and interactions so was coding was about one incident. This had taken me away from grounded theory until I discovered Charmaz's (2006) text, which offers 'incident' coding as an option instead of 'line-by-line'. Charmaz (2006) recommends using the 'constant comparison' technique to compare incidents; this was particularly useful for making comparisons across the practices but also within and across codes (and then later on with categories and concepts).

During the fieldwork and coding for practice three it became clear the language used had not changed and few new codes were developed, the codes which had been suitable for the other practices had also worked there. As a result all the data was cleaned and checked for validity and consistency. The researcher re-read the field notes and checked all the coding for consistency across the field notes for all three practices. A sample of coding was selected by my supervisor (JD) and verified for meaning and consistency.

#### *3.7.4 Category and concept generation*

Through analysis it became obvious certain codes belonged under a category, such as 'knowledge of the patient' and 'relationship with the patient' belonging under the 'in-vivo' category of 'continuity of care' (which was so strong went on to become a concept). A couple of codes stood out as categories in their own right, however, the majority of category development required interpretation and thought. 'Memos', which are analytic notes, were extremely useful in helping me analyse and interpret the data. I wrote memos as ideas emerged through reading the fieldnotes, through looking at each code and exploring what was going on and exploring the links between codes. In memos, I wrote ideas as they came into my head, they were useful as they were not structured and allowed free flowing thought. Memos were useful for comparing ideas and data, and also for reflecting on 'what was going on' and generating new ideas and areas to explore. Strauss and Corbin's (1990) techniques of flip flop and red flag were useful in memo writing when ideas did not just 'pop' into my head.

As memos helped me develop categories and then concepts, I used Strauss and Corbin's (1990) axial coding to specify the properties of a category or concept within a memo. This technique was useful in clarify the definitions of each category and seeing links between them. Through this process it became clear some codes and eventually categories were redundant and did not add to the data. Simultaneously with 'axial coding' I was writing memos, in some cases writing new memos and in other cases adding to existing memos. It was through the 'constant comparative' method of comparing categories, and identifying similarities which lead to the generation of concepts. The concepts were not 'new' but were pre-existing notions and terms, such as organisation and communication. The analytic process was reiterated for concepts, where the properties were defined and memos were written to help explain and understand the concepts and relationships between them. I was writing up my thesis when I was exploring the relationships between concepts, which helped me gain a deeper understanding of the

relationships between the concepts. This is discussed in section 3.7.6. *From concepts to theoretical models*, however, it is important to first discuss how the interview data was used in the analysis process.

### *3.7.5 The use of interview data*

Codes and categories were developed as the fieldwork was on-going. At the end of the period of field work in each practice qualitative interviews were conducted with key members of staff (discussed in section 3.6.2.2). Initially this data was analysed separately, however no new themes emerged. This data was used to help focus on the categories and to gain a deeper understanding of the interviewees interpretations of their actions and of the researcher's findings to date. The interviewees were not asked specific questions relating to the analysis. However once the 'interview' was finished the interviewees were shown the practice prescribing models and asked to comment. Also, I did have a heightened awareness of the findings to-date which could have influenced the line of questioning or explain why no new findings emerged from the analysis. The interviews from Rosnish were carried out and analysed before observation in the Haun and Rubain commenced. Due to a number of pressures and commitments the interviews with the Haun and Rubain were carried out after the observation period was finished in both practices.

At this stage the analysis was still in categories with the researcher clear some categories were concepts. The interview data triangulated the observational data and provided a deeper interpretation of the data from the interviewee's perspective.

### *3.7.6 From concepts to use of theoretical models*

During the writing and re-writing process I became acutely aware of the important elements of the data set and the key messages and findings I had to clearly articulate to the reader. Working

in Atlas.ti, in my memos and scraps of paper and drawings, I thought I had synthesised my data into clear findings with comprehensive relationships and patterns linking them. However, when I came to write these up I realised some of my work was still a description and explanation under categories and concepts, and some of the relationships were not as articulate and firm as I had thought. The writing process and thinking more about my data did help, but at the same time I turned to the literature and explored different theories and theoretical models to try and gain a deeper explanation of the data. I did not find one overall theory which provided an infrastructure for presenting the findings and had an appreciation of all concepts, contexts and the relationships between them, however I did find three theories which provided a deeper understanding of one or more concepts.

Three theories proved to be invaluable in this process Sheaff *et al.*'s (2003) work on 'soft governance'; Weick's (2001) work on 'organisational sense-making' and Gabbay and le May's (2004) work on mindlines. Sheaff *et al.*'s (2003) work on 'soft governance' helped me to explain the CHP policies and mechanism which were exerting pressure upon the practices. By exploring 'soft governance' I was able to see the data in a different light and understand how important the GP's unique contractual status was to their engagement with CHP mechanisms and EBM. Through the analysis it became clear the practices were guided by their values and practice culture. Weick's (2001) work on organisational sense-making lead me to see values and culture were important parts of the practice's identity. Organisation and communication were also important concepts and Weick's (2001) work allowed a deeper understanding of how practice identity is both influenced by and influences the practices organisation and communication strategies. Through analysis it became clear prescribing decisions were made in two different contexts; macro and micro and Gabbay and le May's (2004) work helped explain and structure the findings at the micro level.



### *3.7.7 Negative case*

The final and important step in analysis is to search for negative cases (Brewer, 2000). The Haun practice was the negative case in this study and considered throughout the whole research process.

### *3.7.8 Presentation of analysis by practice*

#### *3.7.8.1 Description and explanation*

Each practice is unique. They have common characteristics of being a practice in Tayside, Scotland, being part of the same health board and government and thus subject to the same laws, controls and constraints. However have a great number of different characteristics; different settings, populations, staff, relationships, processes and systems which were described to help facilitate understanding for the reader. Initially the researcher tried to write these as purely descriptive chapters with minimal researcher inference, but this was naive, I had been constantly interpreting the data. Through describing and explaining each practice's values and systems I had interpreted the data; themes, patterns and relationships had been explored to structure and organise what was going on. This explanation was basic analysis (at the coding level) to attempt to show the data in context rather than being subject to much more detailed interpretation.

#### *3.7.8.2 Comparison chapter*

This chapter presented the concepts and categories which emerged from the analysis and presented the findings. Analysis at this level identified what data was important, grouped and sorted the data into concepts and considered the relationship between these concepts. Three theoretical models were applied to structure the argument and give a deeper understanding and move the analysis from descriptive to analytic.

### *3.7.8.3 Discussion chapter*

This chapter presented the findings of the study, discussed the strengths and weaknesses of the study and the appropriateness of the methods adopted. The findings of the study were discussed in relation to the wider literature and what is already known.

## 3.8 The dominant narrative presented

The descriptive chapters are written from the observation and informal interview data. This explanation was basic analysis (at the coding level) to attempt to show the data in context rather than being subject to much more detailed interpretation and was reporting the practice characteristics and organisational structure to aid the reader's interpretation of the subsequent data presented.

In the comparative chapter the data presented is from the observational data and from the formal practice interviews. The practice narratives were co-constructed between the researcher and the practice staff as the researcher developed understanding in the field and was able to check emerging analysis and interpretations and thus, misunderstandings. As the analysis became more developed I was able to probe and ask questions which were more nuanced, thus much of the data was co-constructed between the researcher and participants, in particular my key informants. In the Haun, there was conflict between what I observed and in what some respondents said, in particular around the practice organisation and communication. In these situations it was my narrative and perception which dominated, based on what was observed.

The interviews provided an opportunity to present my analysis and discuss any conflicts. However, there were no disagreements. In the interviews, I felt the respondents were honest in their responses due to the extent of in-depth observation and the opportunities to check emerging analysis and interpretation during the observational periods.

The discussion chapter situates the interpretation and analysis in the broader context with the wider literature. The theories which were used helped the researcher make sense of her data and analysis and pull the account together. At this point the narrative presented is the researcher's own interpretation of the analysis and how these theories explain the data presented.

### 3.9 Operational definition of prescribing

There are blurred definitions of what constitutes prescribing (Weiss and Sutton, 2009) so it is important to be clear what is meant by a prescribing decision in the context of this PhD. Decisions involving medication where medication was initiated, changed, signed for another repeat term and decisions about the practice prescribing policy. In all three practices most of these decisions were made by GPs, practice pharmacists did make dose titrations but pharmacists and other supplementary prescribers were considered as an influence on prescribing rather than as a prescriber. Primarily, as GPs were signing off many of these supplementary prescribing decisions and pharmacists were employed by the CHPs to influence practice prescribing.

### 3.9 Conclusion

This chapter has discussed the ethnographic methodology and methods adopted in this study. The researcher has described her endeavour with ethnographic analysis and her use of 'interpretive description' as a label which facilitated confidence in her description, explanation and comparison of prescribing behaviour in three very different general practices. This study has placed within a constructivist framework which acknowledges it is impossible to have certainty about knowledge claims and accepts the researcher is part of the study to research it (Hammersley and Atkinson, 1995). Thus the researcher has presented the findings with which she is reasonably confident. In this chapter the researcher has reflexively discussed the

methods adopted and decisions made the field to allow the reader to decide whether the findings are transferable to their setting.

## *Chapter 4*

### ‘RUBAIN’ ~ THE MARKET TOWN PRACTICE; A DESCRIPTION AND EXPLANATION

This chapter will describe the practice characteristics and organisation to provide contextual background to the second section of this chapter, which will show the various influences on a prescriber and how they impact on the consultation. External influences on the prescriber and practice are discussed in light of how they influence practice prescribing policy. Supporting evidence is provided via extracts from fieldnotes and from interviews transcripts. These quotations are from fieldnotes unless otherwise stated.

#### 4.1 The Setting

This section will describe the practice characteristics, their systems and organisation.

##### *4.1.1 The town*

This was a market town with a population of approximately 13,500 surrounded by agricultural farmland.

##### *4.1.2 Practice population and list size*

The practice list size was approximately 5800, where the practice population was a cross section of society and with no demographic group more prominent, fairly typical of the UK average (~5, 400 patients, ~ 3GPs) (Grant *et al.*, 2009).

##### *4.1.3 The health centre*

This was a large old building with a number of consulting rooms off a long corridor. Patients were called for their appointment via a tannoy system in the waiting room.

#### *4.1.4 Opening times*

The surgery was open Monday to Friday, 8.30am – 6pm excluding Thursday when it closes from 12.45 -2pm (This is to test the fire alarm and allows for any office training or to catch up).

Receptionists are in from 8am but they only take phone calls for home visits and emergencies, patients must phone back after 8.30am for any other issues.

### **4.2 Staff**

#### *4.2.1 Clinical Staff*

This practice had four full time GPs (3 male and one female), and at the time of observation had two retainer GPs. The partners are mainly in their 40s and have been with the practice a number of years and are settled. Two partners' surgeries typically overran significantly.

The part-time practice pharmacist, (2.5 days), has been with the practice for 11 years, since the Tayside practice pharmacist initiative started. He had previously worked as a hospital pharmacist and was experienced with medication and working with clinicians.

#### *4.2.2 Practice Nurses*

There are two full-time practice nurses who have been with the practice for a number of years. The surgery took on another practice nurse during the period of observation due to the heavy workload.

#### *4.2.3 Reception/Administrative Staff*

This practice has two managers one for administration and planning and another for IT and finance. Both are female and work part-time (33 hours). The practice manager for administration already had some NHS management experience and was brought into to manage reception, she moved from this role to become one of the job share practice managers. The

practice manager for finance and IT has been with the practice for 18 years and has worked up from a receptionist into this role.

The reception team leader has been with the practice for 10 years and had progressed into this role from being a receptionist. She was in charge of the day to day management of reception.

Each receptionist was responsible for a clinical area, where they send out the appropriate letters for review and appointments.

#### *4.2.4 Locums*

Two GPs pay for a locum one afternoon a week. A partner who worked part-time (1.5 days) left the practice and they have not replaced him, they have chosen to use locums instead. During the period of observation the practice was paying for five locum shifts a week. These locums primarily do the on the day appointments. This allowed the permanent GPs to see their regular patients without acute problems and maintain continuity of care.

#### *4.2.5 Practice pharmacist role*

The practice pharmacist primarily works on audits and optimising the doctors prescribing behaviour. He also runs medication review clinics and an open door policy for GPs looking for advice about individual patients. His main role was to filter evidence, guidelines and implement changes to prescribing. This is a role the practice pharmacist had chosen to carve for himself rather than one which has been dictated by the practice but was accepted and valued by the GPs. The practice pharmacist role is deconstructed in section 4.8.1.

#### *4.2.6 Relationships*

This practice had a stable workforce, with most of the GPs having worked at the practice for over 10 years. The relationships were friendly and collaborative. The practice engaged in

collaborative working and maintained good working relationships through being jovial and having digs at each other through jokes.

#### *4.2.7 Ethos & Atmosphere of practice*

The ethos of practice was one of being patient-centred, striving to be the best through a friendly and humorous manner. They can be caring for different generations of a family, for individual patients and across their families and value this continuity of care. The practice was part of the local community and they value this stature and worked to maintain this respect.

The clinical staff all had a mindset which valued prescribing. The practice valued both quality and cost effective prescribing. They were aware the NHS had limited resources and saw no value in unnecessarily expensive prescribing as this would prevent the funds being available for another patient. They also valued consistency in prescribing within the practice and across the CHP. They would challenge esoteric prescribing within the practice through humour to achieve consistency. As the practice pharmacist compared the practice's prescribing against other practices in the CHP they did not like to be outliers or not seen to be following CHP policy. The GPs appreciated they were accountable for their prescribing and saw value in the practice formulary.

The GPs at the practice seemed to have a good working relationship, which was democratic and based on humour. There was no senior partner so were all equal partners. They valued team working and collaborated closely through regular practice meetings. All the practice partners saw strength in collaborative decision-making. Any issues seemed to be raised through humour and addressed in a friendly and supportive manner.



### 4.3 Communication

Communication was an important part of the culture of this practice so they had a few different communication strategies which are discussed in turn below.

#### *4.3.1 Daily*

The practice had an 11 am meeting every day. Two GPs are not very punctual and frequently use this as time to catch up but do attend, albeit late. This meeting was to catch up with one another, discuss any issues and to divide up the home visits and ward round at the local hospital. The home visits are carried out by the on call GP prior to 11am. A note of what time slot each GP has for home visits was left on the table by one of the PMs.

The senior receptionist and the on duty GPs are always in attendance, the practice managers were sometimes there if they need to address something but not always. The practice pharmacist, practice and district nurses were rarely there, but know it was a good time to catch the GPs if they have an urgent issue.

When reception take messages for the GPs they write on blue pieces of paper specifically designed for communication. These pieces of paper had been designed to ensure the receptionist can fill them in quickly with all required information. It had space to write the patient's name and date of birth, information such as GP's initials and time am/pm to circle accordingly and then to write the details of the inquiry, with a further box for the GP to complete once sanctioned. These blue slips were placed on the desk in the library/coffee room for the 11am meeting alongside summarised patient notes of those requiring a home visit. This was a demonstration of the investment this practice placed in refining their communication channels.

#### 4.3.2 Informal

All the GPs eat their lunch in the coffee room at some point between 1-2pm. They would not linger unless they were discussing clinical or organisational issues. They would also pop in and out regularly through the day. The community nurses also tried to make an attendance at the daily 11am meetings but were only observed once at a meeting. I observed the GPs communicating more frequently with the community nurse in the coffee room over lunch or while passing through. These conversations primarily centred on the community nurses updating the GPs on housebound patients, asking the GPs to visit a patient or to prescribe a medication and discussing treatment options.

The coffee room was an important part of this practices communication. Through spending time with colleagues the GPs were party to information that may not have been communicated through other channels. One example of a conversation in the coffee room was over the practice pharmacist's coffee break, which centred on a prescribing decision. *The GP had received a letter from a consultant in secondary care telling him to prescribe xxxx but when the GP had gone to prescribe this a hook on the computer had told the GP that the drug was not licensed for the patient's condition. The GP was delighted the computer system had flagged up such an error and was informing the practice pharmacist the benefits of the current IT system.*

The coffee room provided the GPs with an opportunity to have informal meetings with the community nurses and the practice pharmacist and to gain contextual information from the receptionists. Communication was an important part of the practice's culture and the coffee room played an integral part.

#### *4.3.3 Formal*

This practice also had formal practice meetings every Friday at lunchtime. Once a month these were prescribing meetings held by the practice pharmacist and the remaining Fridays these were administration, finance and organisational meetings held by the practice managers. The atmosphere between these meetings differed; the prescribing meetings were punctually attended by all clinical staff on duty that day, followed a PowerPoint presentation with an agenda and was chaired more strictly. These meetings used humour to have digs at prescribing behaviour. (Further description and explanation of these prescribing meetings are in given in section 4.8.1.1). The practice manager led meetings were not punctually attended, not always well attended by all GPs on duty. These meetings tended to be more laid back, were more jovial and more prone to move off topic.

Communication was an important part of this practices culture. They valued shared decision-making and good working relationships and felt this could be achieved by communicating face-to-face regularly.

### **4.4 Organisation**

This practice valued being organised and efficient and as a result had invested time refining their processes and systems which are discussed below.

#### *4.4.1 Appointment system*

Patients were offered an appointment within 48 hours. The practice had a system where appointments are embargoed and then released so they are available for patients within 48 hours. The practice also regularly uses locums and they consult for the on the day appointments. Also during some of my time at 'Rubain' one of the GPs was pregnant and suffering badly from morning sickness so during this time she also was only scheduled for on

the day appointments. This practice valued offering continuity of care for long-term conditions so used locums for rapid access for acute problems.

#### *4.4.2 Home visits*

The practice has a rota for home visits and emergencies, each morning one GP was on call from 8am-11am, 11-1pm, 3-4pm, 4-5pm, 5-6pm.

#### *4.4.3 Information Technology*

This practice was using an IT system called Synergy during the period of observation. They were not keen to be going over to Vision but were accepting this (HB policy). The practice had been operating this system for years, utilising a complex reminder system ('hooks') and appointment monitoring system.

The reminder system was another form of communication between the pharmacist and GP. The biggest concern around losing this system was these 'hooks' which helped them be consistent with their prescribing policy. The practice pharmacist had put these on the system so that when a GP selected a drug and they should be prescribing generically it asks if they have checked this first which prompted them to question why they were not prescribing the generic medication. This system also reminded them, if necessary, of cheaper prescribing such as that it would be cheaper to prescribe two half doses or capsules rather than tablets.

#### *4.4.4 Evidence based medicine*

The practice pharmacist filtered evidence and guidelines related to prescribing on behalf of the practice and helped the GPs refine the evidence for their local population (this is discussed in further detail in section 4.8).

The practice had used the IT system to facilitate adherence to their values of organisation, continuity of care and consistency in prescribing behaviour.

## 4.5 Systems

The practice had developed two systems which were pertinent to their prescribing behaviour.

### *4.5.1 Repeat Prescriptions*

Once a patient was stable on their medication they were given a two month prescription. After two months, they can hand in the re-order slip (when the doctor prints a prescription it has two sides, one with their medication to be dispensed and the other has their repeat medication with tick boxes, to re-order), call an answering machine and leave a message or request their medication at the reception desk. The practice asks that patients allow 48 hours for processing of the prescription.

Nursing home patients are issued a one month prescription, and these must be requested a week in advance to allow for processing, due to number of patients and the large number of medications these patients are taking. The Nursing homes send a copy of the patient's medication administration record, which is administered by a pharmacy, to the practice by mail.

### *4.5.2 Chronic Disease Management*

Patients are invited to the practice around the time of their birthday for what the practice calls their birthday bloods, although some patients are reviewed without blood test results. All patients on repeat medication are invited into the practice, usually for a blood test with the practice nurse around the time of their birthday; it was usually the month before. When a request comes in for more medication around the time of their birthday, the receptionist was warned by the computer that it was the time of their birthday and they can check if the patient's

results are back. If the results are back, then the receptionist attaches a card to the prescription informing the initiating GP that their results are in file for checking. If their results are OK then the GP re-issues their medication for another year. If not, the patient was contacted to make another appointment. An equivalent system was also in place for patients not needing bloods.

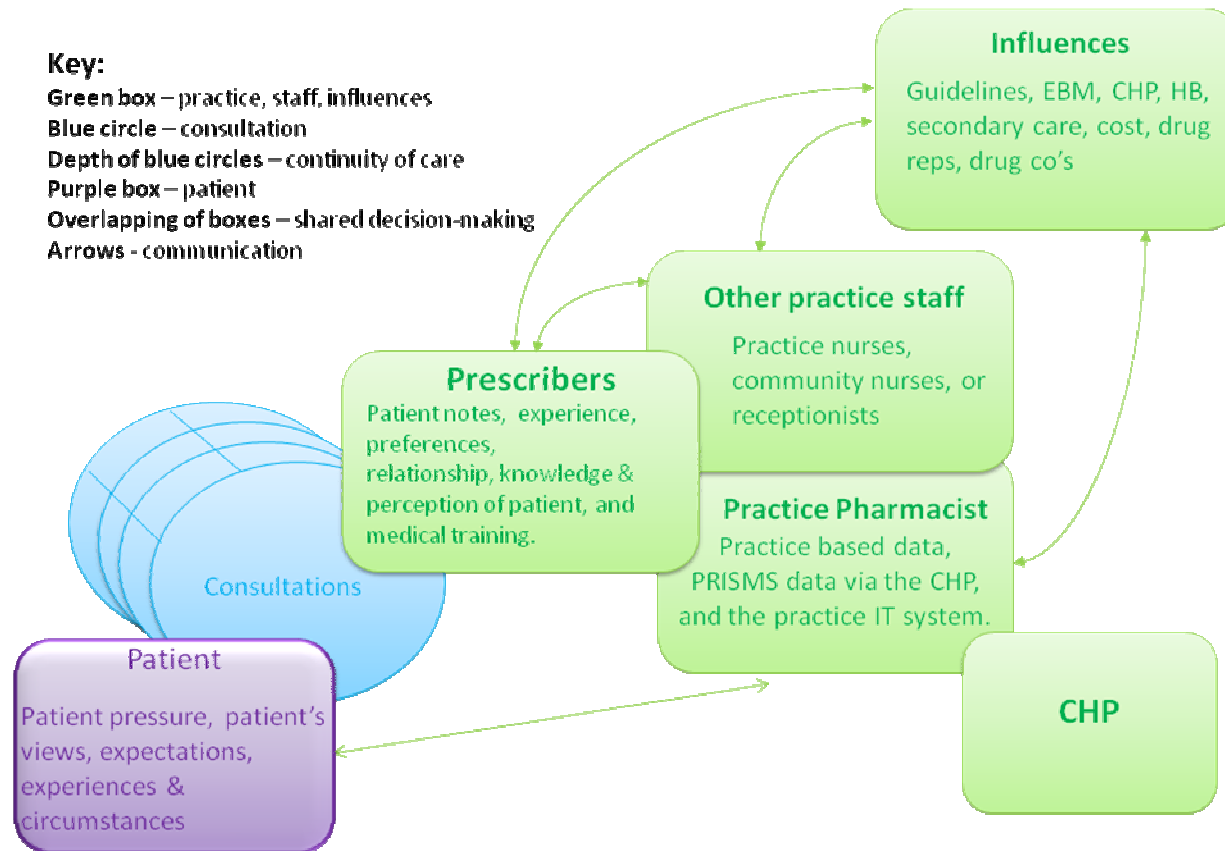
This was a complex system which has evolved over years, which ensures at least an annual check is offered to all patients and was automated as far as possible due to the heavy workload.

This section has described the practice characteristics and organisational and clinical systems to provide contextual information to allow the reader to better understand the information which is to follow. The chapter will now provide explanation with the description to clarify the readers understanding of Rubain's prescribing behaviour, where the practice's prescribing model is presented which illustrates the various influences on the practice and how they organise themselves.

#### 4.6 Practice Prescribing Model

Practice prescribing models have been devised for each practice. These models have been designed in a similar way so the reader can easily depict the differences between the three practices. These models have been designed to visually depict prescribing influences and to show the differences in organisation between the practices specific to prescribing. They are designed to show how and where these influences filter into the practice through to the consultation and how the practices values affect how they organise themselves around these influences. The models also show the processes which link these structural parts of the practice prescribing culture, the most common process is communication. The prescribing model for 'Rubain' will be described in detail. The patient specific influences are the same for all three practices so will only be discussed for Rubain.

Figure 2: Rubain practice prescribing model



Rubain's practice prescribing model visually depicts influences and how they have an effect. A key has been included in the model to aid interpretation. A table of supporting evidence can be found in the appendix (7). This section will now give an overview and explanation to provide the reader with a framework to interpret the model. A more detailed description of each box will follow.

The purple box indicates the patient and the potential influences upon them. Each individual patient has personal views, expectations and circumstances which may lead them to exert pressure towards one or more medications. The patient's personal views, expectations and circumstances may have been considered by the prescriber during the consultation.

The blue circles indicate the initial encounter (acute prescription), and the potential preceding consultations (long-term conditions, repeat prescriptions/continuity of care) indicating optimum levels of continuity of care. The lines through the depth of these circles indicates the different types of continuity of care present; relationship, information, and management.

The green boxes indicate the prescriber and the potential influences on the prescriber both internal and external to the practice. The top green box represents the external influences on prescribers which filter into the practice. The following green box below represents the other practice staff. The practice nurses and community nurses would speak to the GPs about specific patients and ask them to prescribe. This box also includes the receptionists who would make suggestions or recommendations which would influence the organisation or systems of care. Unlike the other practice prescribing models, the practice pharmacist has a box to himself due to the strong influence he had on practice prescribing. The practice pharmacist would present practice prescribing data to inform the practice of their prescribing behaviour and make suggestions for improvement. The practice pharmacist would filter CHP recommendations into



the practice. This is indicated by the CHP box overlapping the practice pharmacist box. The practice pharmacist would also filter EBM into the practice, indicated by the green line running from the 'influences' box to the pharmacist box. The line from the pharmacist to the patient indicates the medication reviews and chronic disease management clinics the pharmacist would run. The line from influences to other practices staff and to prescribers shows their attendance at pharmacist lead prescribing meetings. Influences would also go straight to the prescribers and other practice staff. They would share this if they felt it was relevant. The final green box is the prescriber, each prescriber has a number of personal influences which they may bring to the consultation and these are listed in this box. The prescriber, other practice staff and practice pharmacist boxes overlap to indicate the high levels of communication and shared decision-making at this practice.

The lines between the boxes indicate communication as well as the overlapping of the green boxes. The overlapping of the prescriber and patient boxes over the blue circles indicates their active involvement in the prescribing decision-making made in the consultation.

Each of the boxes in the model now described in detail.

#### *4.6.1 Patient*

##### *4.6.1.1 Introduction*

Each patient is unique; they have their own ideas, views, experiences, social circumstances and psychological factors. These views and opinions are shaped by previous experience and through friends and family and the media. How a patient's views, expectations, understanding impact on a consultation are considered below.

#### 4.6.1.2 Patient Views

Patients have their own views about medicines; people are very diverse and have very different views, opinions and perceptions of medication. These views are based on a personal set of beliefs and understandings influenced by factors including their own personal experience, from family and friend's experiences, culture, education, and social circumstances.

##### 4.6.1.2.1 Origins and Nature

Patient's beliefs and views about medication originated from antecedents listed below:

**Personal experience** – a patient's experience of medication influenced their views either towards or against medication. An example of a patient's experience influencing views towards medication is given. *HRT had made such a dramatic difference to one woman's life she was against coming off the medication despite the health risks.*

An instance of a patient being against taking a medication was when the patient was advised to start blood pressure medication. *This patient had no symptoms as a result of their high blood pressure and appeared not understand why they should start medication.* (Section 4.6.1.2.2 below will describe how patient's views were expressed).

**Word of mouth** – patient's views towards medication also originated from word of mouth from friends and family. An example was smoking cessation treatment. *Numerous patients were observed asking for Champix, as this medication had worked for someone they knew.*

**Media** – The media reporting of either the benefits or risks of certain types of medication had influenced patient's views. An exemplar of bad press coverage was HRT. *One woman was against taking HRT because of the bad press it had received despite suffering distressing*

*symptoms. During the consultation she asked more than once if there was any other treatment to prevent her symptoms.*

#### *4.6.1.2.2 Expression*

Each patient brings their beliefs and views to the consultation and some patients openly express their views, some patients expressed their views when they were given one treatment option over another and some patients expressed non-verbal clues to the clinician such as body language, hesitation, facial expressions, which gave indication to the clinician to probe a little deeper to elicit these views. (This will be explored further in the consultation/interaction section later on).

Patients expressed their views in various ways which are addressed below:

**Spontaneous and overt** – Patients expressed their views about medication in an open and unprompted manner (e.g. An example is given from a consultation); *a patient who was given a prescription for a new inhaler in her last consultation and returned as she did not like the new delivery system which spits out medication rather than old inhalation technique. The patient was prescribed her old inhaler.*

**Sought by GP** – On most occasions patients expressed their views once the issue had been addressed by the GP, where the GP was suggesting initiating medication, stopping medication, different treatment options or asking how they were. *One patient expressed their views against taking medication when the GP suggested they start medication for their blood pressure. An example of patients expressing their views against stopping medication was a patient on HRT who did not want her symptoms to return.* Frequently different treatment options were

discussed and patient's expressed their views over one option over another such as *treatment for a dry and itchy scalp, would the patient prefer ointment, shampoo or cream.*

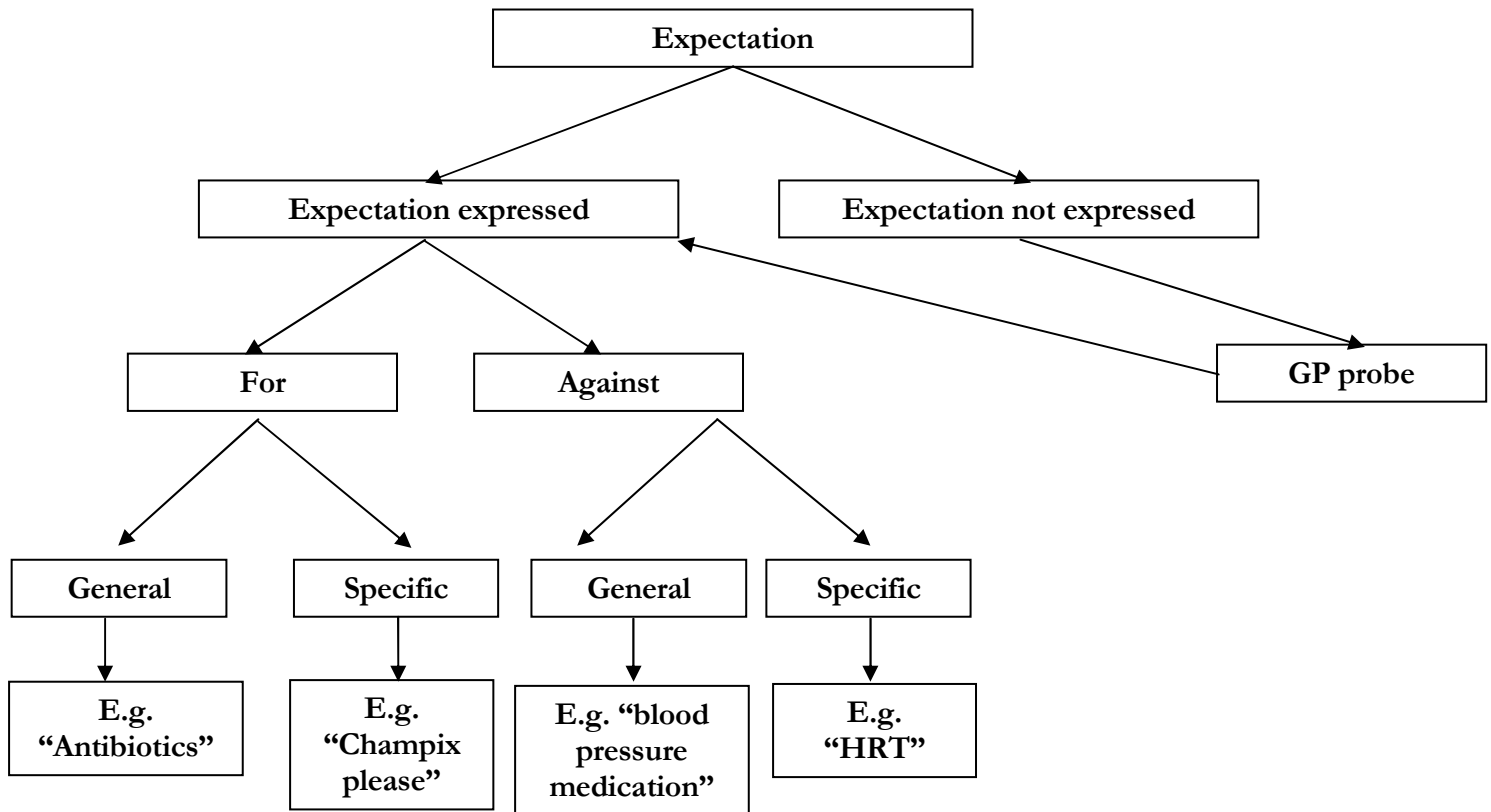
**Hints and cues** – Patient's frequently expressed their views in a subtle manner. They would tell stories about their condition, symptoms and circumstances, or would use body language such as moving around on their seat, facial expressions, or hesitations such as saying 'mmmm'. The GPs would use these cues if they felt they needed to probe for more information.

The effectiveness of patient's expression of their views depended very much on the GP's views.

#### *4.6.1.3 Patient expectations*

In some cases patients came to the consultation expecting something; information, education, reassurance, advice or a prescription. As this study did not ask patients about their expectations it was not clear how much of an influence or impact this could have played. The researcher could only go by her and the GPs perceptions of the patient's expectations unless they were explicitly expressed. In some cases the researcher perceived the patients to be looking for advice or reassurance when the GP thought they were seeking a prescription. When patients did make it clear they were only looking for advice, or reassurance they were typically given an explanation of their concern and further education about their condition. When patients come to the consultation expecting a prescription and they expressed this, this has been described in the section below as patient pressure.

Figure 3: Patient expectations and patient pressure diagram



#### 4.6.1.4 Patient pressure

The diagram above shows patients expectations and the consultation path which follows when patients exert pressure.

Patient pressure was when the patient was trying to influence the prescribing decision either towards a prescription of their choice or against receiving a prescription. As this study did not ask patients about their expectations from the consultations this section is based on the researcher's perception. In most cases patients were perceived to be pressing for a prescription however, consultations were observed when patients were against receiving a prescription.

When patient's entered the consulting room expecting a prescription they tried to influence the prescriber's behaviour in a more subtle manner than demanding medication;

**By verbally by asking for drug by name;** *a patient presented a list of medication she would like to be treated with. Her husband was a clinician. She was given the medication she requested despite them not being a generic preparation.*

**Telling stories of their symptoms;** *a patient who was an alcoholic entered the consulting room and asked for more diazepam and dihydrocodeine. The GP refused saying it was only Wednesday and he had been given plenty on Friday. The patient then started telling the GP he had a chest infection and a cough. The GP examined him and his lungs were clear. He was offered an antibiotic but no more of the medication he was after. He stormed out.*

**Explaining their symptoms again,** *an example was of a patient who was looking for something to help her sleep. The GP emphasised that she needed a routine before bed but the patient repeated her symptoms, to which the GP told her to try 'rescue remedy'. She did not leave with prescription but lots of advice about what to do before bed to help her sleep.*

**By not getting up from seat;** *one patient had been suffering from her symptoms for less than 48 hours so the GP told her to rest and come back if symptoms did not clear by themselves. She did not get up from her chair and in the end was given a 'delayed prescription'. (A delayed prescription was when the GP gives the patient a prescription to cash if their symptoms do not improve in the subsequent days).*

**Not making any indication of leaving the room;** *one patient had sore feet and was looking for medication to make her more comfortable on a long walk she had planned with friends in a few days. The GP told her she did not think she could go and educated her about appropriate*

*footwear. After some discussion the GP suggested corn pads and was trying to conclude the consultation but the patient was still talking about her walk and the risk of infection. The patient remained in her seat after a period of silence and resulting in the GP giving her a delayed prescription for cream in case of infection.* The difference between this and patient's not getting up from their seat was the silence. When patients did not get up from their seat they would still speak, often discussing their symptoms, allowing the GP opportunity to reassure them. 'Not making any indication of leaving the room' was a much stronger expression of pressure, alluding to not leaving the consulting room without a prescription.

**GPs perceived pressure** simply because the patient had attended the surgery. There were some occasions when I perceived the patient to only be looking for advice, education or reassurance and the GP thought they were after a prescription. An exemplar was; *a patient who was suffering from a cough and cold. I had thought they were just there for some reassurance due to their questions and statements emphasising it that it was not severe whereas the GP had perceived they were there they wanted an antibiotic.* In some cases patients were asking lots of questions, just for reassurance and this made me think they were not necessarily looking for a prescription.

Patient's usually exerted pressure at a point in the consultation when the GP indicated a prescription would not be issued. Consultations are allocated ten minutes which limits the available time for discussion and debate; however, patients can have strong views either for or against a prescription despite the discussion and debate. This can result in patients receiving the prescription they have sought against the GP's better judgement. Antibiotics were the most commonly sought after medication which was received against the GP's judgement. In these cases patients might be told it was a delayed prescription in an attempt to compromise.

#### 4.6.1.5 Patient Circumstances

Patients' circumstances have a huge impact on a prescribing decision, whether they encourage, discourage a prescription or influence choice of preparation.

##### 4.6.1.5.1 Encourage a prescription:

**Life expectancy** – Limited life expectancy can encourage the generation of a prescription. *For example: patients who are prescribed more opiate based medication to make them more comfortable in their final days or months as it does not matter if they become dependent on the medication or not.*

**Living conditions** – A patient's living conditions can affect whether they receive a prescription or not. *For example, a patient was suffering from a cold/flu and would not normally have been given an antibiotic but as her husband suffered from severe COPD the GP did not want an infection brought into the home so the prescription was given as a precaution.*

**Working conditions:** *An interaction was observed where a patient worked offshore and they were given a prescription rather than asking the patient to wait or come back if their condition deteriorated.*

##### 4.6.1.5.2 Discourage a prescription:

**Living conditions:** Patients' living conditions can also discourage a prescription. *For example, a drug addict who lived in a hostel was looking for a range of medication which had been stolen from him. The GP was not happy to prescribe the medication while the patient's was still living at the same address and at risk of theft again.*



#### 4.6.1.5.3 Influence choice of preparation:

**Living conditions:** A patient's living conditions can also influence the choice of preparation. *For example, a mother of young children suffering from sciatica had tried numerous pain killers which were making her drowsy and she was scared she would not wake during the night if her children needed her or were not strong enough and she could not sleep. The GP suggested amitriptyline, which is not licensed for this use but is used by neuro-surgeons for this purpose, the patient was willing to try.*

A patient's views, expectations and circumstances do influence the prescribing decision-making process however, they tended to influence the choice of treatment rather than whether to prescribe or not. The consideration of their views was 'occasional' based on the severity of their condition and their mitigating circumstances.

### 4.7 External Influences on Practice and Prescriber

This section will present external influences which are standard for all practices within Tayside Health Board. However, each practice was unique in how they assimilate these into the practice prescribing policy. Each of these external influences are not viewed equally but in a hierarchy described in turn below. This practice's prescribing policy was formulated through discussion with the practice staff and these mechanisms are discussed in the next section; other practice staff.

#### 4.7.1 Evidence based medicine (EBM)

Evidence based medicine is the process of getting evidence into practice. Evidence arrives in general practices via papers, expert opinion and practice and syntheses such as systematic reviews and guidelines.

#### *4.7.1.1 Guidelines*

Guidelines are recommendations for clinical practice based on synthesised research evidence which are designed to aid decision-making and reduce variation in prescribing practice. Publication of a new guideline triggered practices to consider their prescribing behaviour in light of this evidence. Guidelines are published by a number of organisations, agencies and professional bodies such as; The British Association of Dermatologists, The British Thoracic Society, The Royal College of Physicians, Royal College of Obstetricians and Gynaecologists and The National Patient Safety Agency. The Scottish Intercollegiate Guidelines Network (SIGN) also publishes guidelines and it was the publication of these guidelines which had the biggest impact in each practice. SIGN is part of NHS Quality Improvement Scotland and produces guidelines on a wide range of disease areas. SIGN's equivalent in England is NICE (National Institute for Clinical Excellence). When SIGN publishes a new guideline they are disseminated to all general practices by their health board. Practices are responsible for the implementation of these guidelines relevant to the needs of their population. During the period of observation SIGN 97 was published and is discussed later on in section 4.8.1.3.

#### *4.7.2 Journal articles*

“Evidence based medicine (EBM) is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients” (Sackett *et al.*, 1996). EBM refers to journals and other guidance which are peer-reviewed and publish the latest research. GPs are expected to read journals regularly, critically appraise relevant papers and incorporate the research evidence into their clinical practice. EBM is about incorporating research evidence into clinical decision-making aiding their clinical judgement about optimum treatment for individual patients. This clinical evidence can inform clinical judgement but it cannot replace expertise or patient choice. Nearly all GPs observed commented that one

journal article did not change behaviour and it took an accumulation of research papers in an area to completely change behaviour.

#### *4.7.2.1 'Comics'*

News type journals, often referred to as the 'comics' are also sent regularly to health care professionals. These are not peer-reviewed but they condense and summarise evidence in a way which was more digestible. As they are not peer reviewed these articles carry less weight but they can highlight issues which clinicians should be aware of. 'GP-Update' was regularly seen around all practices. This publication is funded by adverts so has implications for influencing their prescribing of new medications.

#### *4.7.2.1 Practice library*

This practice had a library which was kept up-to-date with one journal, the British Medical Journal. There were paper copies of other journals available but not all were up-to-date. All the GPs received the BMJ and a 'comic' 'GP-update'. Clinicians do not read these journals cover to cover but will read articles which they find interesting or relevant. This practice also had a log-in for the NHS eLibrary, which allows clinicians to search for relevant journal articles however I did not see any clinicians using this facility.

#### *4.7.3 Community Health Partnerships (CHP)*

Community Health Partnerships are part of the local Health Board but are smaller units, which are designed to work more closely with other service providers such as social work. They hold the prescribing budget and are tasked with influencing prescribing behaviour. In Tayside health board there are 3 CHPs; Angus, Perth and Kinross and Dundee city. These CHPs provide local area prescribing advice and guidance via the practice pharmacist to the general practices. This advice was based around constraining costs and promoting quality prescribing. To influence

practices' prescribing the CHPs publish a quarterly prescribing report from data extracted from PRISMs which compares each practice in the CHP against one another by Audit Scotland (2003) prescribing indicators for both quality and cost. They also seek to influence prescribing by providing information, such as the formulary, running incentive schemes and providing professional input from practice pharmacists. This practice relied on their practice pharmacist to help them incorporate EBM into their prescribing practice which is discussed in section 4.8.1.3.

The CHPs regularly conduct audits of prescribing practices and have initiatives to improve prescribing. An example of this was for fluoxetine (antidepressant), where all the CHP practices were prescribing above the Scottish and Tayside averages. The CHP gave each practice a financial incentive to improve their prescribing practices. At this practice the practice pharmacist regularly conducted audits of the practices prescribing and set reminders on the computer system, really pushing the GPs to change their prescribing behaviour.

#### *4.7.4 Health Board formulary*

Tayside Health Board publish a local area prescribing guide which was designed to be the foundation of prescribing practice for all general practices. The guide was divided into sections (as in the BNF) and each section contains the core drug formulary. It was intended to guide choice and improve consistency in prescribing across the health board area. The drugs which are included are selected on the basis of clinical efficacy, safety, patient acceptability and cost effectiveness (NHS Tayside, 2006). All practices observed used this prescribing formulary as the basis of their practices prescribing policy. In 'Rubain' the practice pharmacist manipulated the IT system by making only drugs available on the formulary appear in the drop down boxes of medications from which they could select. Changes in the Tayside prescribing guide were brought to the attention of the practice by the pharmacist.

#### 4.7.4 Drug Representatives and drug companies

Drug representatives (drug reps) are used at this practice for occasional lunches where one GP, usually the first to arrive, makes an effort to listen to what the drug representative has to say. The GPs knew that the drug representative was giving a marketing speech trying to sell the company product but they pay little attention. *One went on to say that it must have some influence otherwise the drug companies would not spend so much money on this type of promotion.* The drug representatives leave pens, mugs, notepads and information brochures of the drugs they have been promoting, which seek to refresh the memories of the GPs who spoke to them. The drug representatives were also quick to mention the drugs they were promoting were on the Tayside area prescribing guide in an attempt to encourage GPs to prescribe the medication.

#### 4.7.5 Secondary Care

Patients who had attended an outpatient clinic, had been discharged from hospital or had seen a consultant were frequently discharged with recommendations of medications or were started on medication. GPs do regularly follow the consultant's recommendations, illustrated from this extract:

*This patient has polymyalgia and recently had an angioplasty and was in for her results. She admitted she was feeling sore herself. She had been at a 50th birthday party, and although she had nothing to drink she admitted she did vigorously jive to 4 or 5 songs. She increased her dose herself after this event from 5 to 6. The Doctor checked the consultant's recommendations on the computer and it said if she has a flare up increase by 2. The patient admitted this but said she wanted to see if she could get away with one but no, she was sore. They had a discussion and agreed between them to increase the steroid dose by 2 for a month,*

*and then down by 1 for a month and then down again by 1 for a month. This was the Doctor's suggestion and she agreed.*

On occasion, these recommendations or initiations could be expensive or not available on the Tayside formulary. The GPs at this practice felt that they should try and get the patient onto a cheaper preparation but this could be difficult if the patient was happy and stable on the medication. They did rely on the practice pharmacist to help them find an appropriate alternative preparation if they were unsure. When patients had been for an outpatient appointment or to see a consultant they were given a letter for the GP with recommendations for the GP to prescribe. Often in these situations the consultant or outpatients had discussed the medication with the patient and meant it was difficult for the GP to contradict these recommendations. As one GP commented *"they often make recommendations which are hard to contradict, the patient has been to the clinic and the doctor has told them that is the medication they should have, it is difficult to then prescribe an alternative or decline to prescribe it."* The GPs were aware these were only recommendations but also had to gauge the patient's reaction and maintain both doctor-patient relationships.

The GPs also become aware of what the local consultants are prescribing for a particular disease and tend to follow this trend. If a GP has prescribed a medication for a patient and they are not familiar with it they will inform themselves to be able to look after the patient appropriately. Consultants from the local hospital also give talks at GP meetings which educate GPs about the latest medication in their field. As the GPs look after more and more patients on the medication they gradually become familiar with medication and will start prescribing the drug themselves.

There were a number of external influences on the practice's prescribing behaviour, these varied in their impact, with SIGN guidelines having the most immediate and noticeable effect.

#### 4.8 Other practice staff

This section describes the influence the other practice staff had on GPs prescribing behaviour. Practice pharmacists are employed by the CHP and community nurses are employed by the health board however, they were viewed by the practice as part of the team.

##### *4.8.1 Practice pharmacist*

When Tayside Health Board introduced practice based pharmacists in 1997 they were the only health board at the time to invest in prescribing in this way. As pharmacists have specialist knowledge, placing them in primary care gave them the opportunity to educate GPs, to influence practices to deliver high quality prescribing and as one potential mechanism to reduce their prescribing costs. As this was innovative and atypical each of the CHPs were given autonomy as to how the pharmacists should operate and to define their role. The CHPs passed this autonomy onto the practice pharmacists to meet the unique needs and requirements of each practice. At the time of observation the practice based pharmacist's roles were still loosely defined to reflect practice need. They provided advice to GPs, helped practices update their prescribing formularies, and ran clinics such as anti-coagulant and medication review and signed off expensive prescriptions. As employees of the CHP their remit was also to implement CHP prescribing guidance.

##### *4.8.1.1 Specific practice pharmacist role*

The practice pharmacist was fundamental to this practice's prescribing policy. The pharmacist has been at this practice for 11 years during which time he has built a rapport with all GPs and established a position of trust. Now the GPs rely on the practice pharmacist to inform them of

the latest research evidence related to prescribing. The pharmacist has a monthly meeting with all the GPs and practice nurses and on occasion the practice managers will also attend. At this meeting the practice pharmacist presents research evidence and any changes in prescribing policy at CHP or health board level and any issues flagged up during clinical practice. Quarterly he also presents the CHP prescribing report.

#### *4.8.1.2 Practice prescribing meeting*

The CHP report compared prescribing practice of all general practices in the CHP against one another for both quality and cost. This report helped the practice review the areas in which they are outliers and agree on a course of action to improve their prescribing. The pharmacist presented a PowerPoint presentation showing diagrammatically changes in prescribing and how they have improved compared to the other practices in the CHP. Presenting the report in this way was intended to fuel a competitive drive and breed motivation. The GPs in 'Rubain' were very interested in where they were in comparison to their CHP counterparts, in particular practices which were serving a similar population. Through discussion and debate chaired by the practice pharmacist all prescribers reached an agreement about the most appropriate drug to be prescribed first-line, second and third line. Most discussion in these prescribing meetings was not around initiating new medication but altering doses or changing medications within the same therapeutic group. An example of this is described below:

*The practice pharmacist presented data on one indicator showing the practice was an outlier. Prescribing simvastatin 10mg was considered as poor prescribing by the indicators used in the CHP report and the presented quarterly report indicated the practice was prescribing a lot. The GPs argued that if the patient was responding well and was stable why should they increase the dose. However, the evidence behind the indicators suggests that 10mg was not effective. This sparked discussion and debate. The GPs gave examples of potential patient*



*cholesterol levels and asked why they should increase the dose. They also give an example using patient age asking why should they increase the dosage for a patient who is 95 years old. The practice pharmacist agreed that it was pointless in very old patients with co-morbidities but there must be cases when prescribing 10mg was inappropriate as the report has identified 17% of the practice population. The GPs muttered and did not speak up and say they agreed but did not argue or comment back.*

New guidelines were also discussed at these meetings. The practice pharmacist presented the evidence from the guideline and the recommendations and through informed discussion and debate they revise their prescribing policy. For example, SIGN 97 was published during the period of observation, which was a guideline on estimating the risk and prevention of cardiovascular disease. *The practice debated how they could assess the risk factors, such as the various risk factor calculators available on websites and computer systems as to the most appropriate. They also discussed how they measure cardiovascular risk and if there were improvements that could be made when the nurses are taking the clinical recordings. It took the three prescribing meetings to discuss and debate all the relevant information and agree on their revised practice policy*, although this was not all the information which was discussed at these meetings. The practice pharmacist chaired these meetings and ensured the discussion did not dwell on points, all meetings observed had a longer agenda than they managed to get through.

#### *4.8.1.3 IT*

A summary of these meetings and the decisions made was circulated round the clinical staff by the pharmacist. He waited for a response and after a short period of time, dependent on work commitments he updated the hooks on the computer system. Hooks were invaluable to this practices prescribing practice. Hooks are reminders which pop up on the clinical IT system

reminding prescribers of the practice's prescribing policy. For example, when a GP clicks on the prescribing box and selects a medication a hook will pop up if what has been selected is not part of the practice's prescribing formulary. The IT system would allow the GP to prescribe this medication if they so wished, the 'hook' was a reminder not an order.

#### *4.8.1.4 Clinical Role*

The practice pharmacist also gave advice on individual patients, ran audits and medication review clinics, however, the pharmacist primarily viewed his role as one of influencing prescribing in terms of quality and cost; influencing prescribing policy and containing the practice's prescribing costs.

#### *4.8.1.5 Cost-efficiency role*

The CHP had a limited drug budget and part of the practice pharmacist's role was to bridge the gap between the CHP and the practice, in particular by constraining their prescribing costs. At the monthly meetings the practice pharmacist regularly informed the GPs that they should now be prescribing something because it was cheaper. For example, pregablin was deemed to be very expensive and they should prescribe gabapentin instead. Or they should prescribe two times 300mg rather than one 600mg as it was cheaper or to prescribe tablets instead of capsules. He also informs them when drugs are coming off patent. Again they relied heavily on the practice computer system to remind them of these changes.

Patients were regularly discharged from secondary care on expensive medication. Many drugs are cheaper in secondary care than they are in the primary care sector, so when patients are discharged this cost was passed onto the practices. This was deliberate loss leading by pharmaceutical companies. Many of the recommendations from secondary care are also for these expensive drugs and drugs which are not on the Tayside prescribing formulary, thus they

are drugs GPs were not familiar with. The practice pharmacist regularly took these recommendations and was able to advise the GPs of appropriate medication for the patient which was within the same class of drug, and had the same effect but was not as expensive. As one GP put it *“he helps them fine tune the instructions from secondary care”*.

The pharmacist was the main influence on practice prescribing, filtering and processing the external influences on prescribing and providing expert advice on medication which allowed the GPs to concentrate on other aspects of their job.

#### *4.8.2 Practice nurses*

Two of the practice nurses ran chronic disease management clinics and were able to alter patients' doses. The practice nurses would also inform the GPs in the coffee room of any contextual information from patients which they felt were important to the patient's wellbeing.

#### *4.8.3 Community nurses*

The community nurses would update the GPs on patients in the community, they frequently asked the GPs to visit a patient or to prescribe a medication and they would engage in discussions with the GPs about treatment options.

#### *4.8.4 Post-graduate doctors*

This practice was a training practice, which means they take doctors for their post-graduate training in general practice. One GP's comment illustrates the influence these doctors had on the GPs; *“they keep you on your toes; they often know things you don't know, especially with some modern slants to things.”*

This practice had good working relationships and the GPs appeared to trust their colleagues and take their information and advice onboard.

## 4.9 The Prescriber

Although the GPs are strongly influenced by the practice prescribing policy and in many consultations this was the dominant influence, they still have clinical autonomy. Each GP has core influences which affect each prescribing decision; their experience, medical training and preferences, their personal beliefs and attitudes and their relationship, knowledge and perception of the patient.

### 4.9.1 Medical Training

Students undertake five years of undergraduate education to become a doctor and then undertake a minimum of four years post-graduate training in a range of specialisms of their choosing. This education and post-graduate training was the core of a GPs experience and knowledge. Their experiences during this time influenced their choice of specialism. During their post-graduate training these young doctors are exposed to a variety of medical decisions, including prescribing. Some GPs did mention their post-graduate training had influenced a medical decision; this was more prevalent in the younger GPs. As one GP commented *“what you prescribe depends on where you are in your career.”* When this GP first started she was *more familiar with hospital medication but said as time goes on you get more confident and you learn yourself and you try different medications.*

### 4.9.2 Experience

A GPs experience had the strongest influence over their prescribing. They had to be comfortable and knowledgeable about the medication that they were prescribing, and this came with experience. These GPs tended to prescribe from a range of drugs which they knew well and did not need to look up to prescribe. This experience was gained through their years of practicing as a GP. The knowledge they gained at medical school was core but has been shaped

through their years of practicing. With experience come habits, techniques and preferences, which have moulded them into the practitioners they are today.

At this practice all the GPs are experienced and have been practicing medicine for a number of years. Through this time they have seen many different prescribing decisions, with a wide variety of drugs with many different patients who have different circumstances, conditions and outcomes. Their experiences did not have to be identical as the GPs seemed to have the capacity to see similarities and to draw on these similarities and differences to aid their decision-making and to make evaluations. Practicing medicine was about experimenting or trial and error which leads on to new knowledge. As one GP said *“It is trial and error, everyone is different, prescribing is not an exact science.”*

GPs frequently see the same patients over again so they also have knowledge and experience of the current patient, their circumstances and conditions, and experience of their views and opinions towards medication.

#### *4.9.3 Knowledge of the patient*

A GP's knowledge of the patient varied. In some cases, they knew the patient very well, usually patients with multiple co-morbidities where they often had an established relationship built on trust and respect and knew about the patient's medical condition(s) and personal life. This usually involved knowing some of their medical history but also to know about their family and social life, their issues, concerns, problems, support networks and hobbies. With those patients who consulted less often GPs tended to be more acquainted with their information. The amount of information a GP knew about a patient was also dependent on the length of time they had worked at the practice and how long the patient had been registered.

The influences on a prescriber have been described (these were the green boxes in the model). Through describing each box the writer has tried to illustrate how they overlap and link together. This next section discusses the consultation between doctor and patient, where the prescribing decisions are made.

#### 4.10 Interaction/Consultation

This section will provide an overview of the structure of an interaction or consultation between a patient and doctor and discuss continuity of care between GP and patient (illustrated by the multiple rings in the model).

##### *4.10.1 Interaction*

An interaction between a GP and patient follows a standard structure. Once the patient has entered the consulting room the GP establishes an initial rapport and identifies the reasons for the consultation. In some cases the patient comes with more than one problem so the GP makes the structure of the consultation clear. This leads on to the GP exploring the patient's problem/s to gain a clinical perspective and the patient's perspective of the problem. The GP also looks for background information which can help give context and further understanding. If necessary, a physical examination of the problem was carried out, to further the clinical perspective.

After the examination the GPs explain to the patient the clinical perspective in a way in which the patient would understand, using lay language and trying giving the right amount of information to aid their understanding and then subsequent recall. The GP reads the patient's body language and facial expressions and probes to explore their understanding and how they have incorporated this into their perspective of their illness. In some cases planning was required, possibly a treatment plan or further investigations. The GP shares their views on the

next course of action and through shared decision-making with the patient usually formulates a plan of action.

#### *4.10.2 Continuity of care*

Continuity of care refers to how a patient's care is connected over time. Continuity of care is recognised as having three different types; informational, relationship and management continuity. Informational continuity is the GPs tacit knowledge of the patient's preferences and values, relationship continuity is the information GPs know about their patients which they do not record in their notes and management continuity is maintained through the patient's notes and management plans.

All patients have had previous interactions with a health professional. Unless they are a new patient at the practice they will have consulted a GP at the practice and this interaction was recorded in their notes. Young, healthy people rarely visit their health centre and only for minor or acute problems so continuity of care established through their notes. Patients who are older or suffering from a chronic or limiting condition will tend to see the same GP and build a relationship. In the medical profession how a patient's health care is connected over time is referred to as continuity of care (the multiple circles in the model illustrate this continuity).

##### *4.10.2.1 Patient's notes*

Patients' notes are a medical record of the patient's name, address, age, past medical history, previous visits at a GP with the diagnosis and outcome of this consultation. At this practice most GPs read over the patient's notes quickly before most patients entered the consulting room, primarily to refresh their memories on the specifics of the last consultation or to see if the patient has consulted with another health professional and the outcome. Some consultations

were observed where the GPs did not need to look at the patients notes to refresh their memory. An extract from fieldnotes illustrates the common use of patient notes:

*“Before the patient came in the room the doctor gave me a quick summary of their background whilst she read the notes. Most of the patients she seemed to know who they were and appeared to remember quite a lot about them, the information in the notes seemed to jog her memory.”*

Patient notes provided continuity of care for all patients; however for young, healthy patients this was the only mechanism for continuity. Older patients, with chronic conditions also had relationship continuity with their chosen GP.

#### *4.10.2.2 Relationship continuity of care*

Relationship continuity of care is a relationship which is built up over time between the GP and their patient and is based on trust. Relationship continuity of care with patients saved time as the GPs tended to know information about the patient, which saved patients repeating information and enabled the GP to better understand the patient's context, preferences and values. By having multiple consultations with patients the GPs invested time educating patients about their condition.

#### *4.10.2.3 Knowledge of the patient*

GPs got to know their patients through the patient's regular visits to the surgery over a period of time. Over time health professionals learned about where a patient lives, about their domestic arrangements, whether they were married, single or cohabiting and if they had any dependents such as children, or elderly or ill relatives. They learned about their medical history, any significant past medical events and the impact of these on the patient. Also about their personality, such as whether they are anxious, nervous or concerned. When patients had



concerns, issues or problems about themselves or one of their family members these concerns caused stress and on occasion severely impacted on their life. Also other aspects of their life which can cause stress such as whether a patient was happily married or has any financial worries may also be known and helped the clinician help the patient. In one consultation observed a patient was very anxious and concerned but as the GP knew her he understood why, below is an extract from the fieldnotes from the consultation:

*This patient came in and was very concerned about the pain at the bottom of her head/neck area; the Doctor examined her and told her he thought it was some ligaments. She asked him about her eyes as well and if they were related, when she is describing these she is going into a lot of detail about what she was doing, the type of pain, how long it lasts and asking the Doctor lots of questions. He turns to me during the consultation and says this lady has had a head hemorrhage in the past. This explained why she was anxious and really wanted to understand.*

In this practice, the GPs also learnt about their patients from their colleagues, the practice nurses, community nurses and the receptionists. The receptionists were all members of the local community and knew many of the patients thus were able to provide contextual information. *An example of this was observed in the coffee room when two of the GPs were talking about a patient and her care issues when one of the receptionists told them one of her neighbours goes in regularly and checks on her.* As this was a small community the practice looked after a number of relatives from the same family, when relatives were in consultation with the GP they would update them on the lives of their relatives particularly if the relative was old or young, such as a new born baby. An example:....*during the consultation the GP tells me he has known this young lady all her life, as a patient but also through the church. He asks after her family and she tells him how her sister is getting on with the new baby, the baby has a*

*tooth coming through and her sister is getting little sleep but that their mother had been taking her other child, to give her a break.*

Knowledge of the patient saved time, as patients did not repeat information and allowed the GP to better understand the patient's context and prescribe appropriately if required.

#### *4.10.2.4 Preferences and Values*

Through numerous consultations the GPs had learned about the patient's preferences and values. They tacitly knew this information. The GPs knew if the patient preferred taking medication or was against taking medication, if they preferred capsules to tablets, preferred medication which they could take twice a day rather than three times a day, or ointment to cream.

The GP also knew about the patient's values, in particular what aspects of quality of life were important to them. Did they value how they felt on a daily basis, or did they value what they were able to do, did they look to the future and were prepared to endure side-effects now for long-term gain. An example:

*This very large lady had never been bothered by her weight, she always seemed happy and able to do what she wanted to do. However, one day she was motivated to do something about it. Her grandson had asked why he could not sit on her knee. From that day on she was motivated to whatever it took to be able have her grandson sit on her knee. She underwent an apronectomy, saw a dietician and was prescribed medication to help her cope with the physiological changes.*

Prescribing was often the easiest option for the GPs to end the consultation. By knowing the patient and having continuity of care the GPs could leave the issue in the present consultation and say they will address it again.

#### *4.10.2.5 Relationship with patients*

To know someone you require some form of a relationship with them. An important aspect of the clinical encounter was good communication, which was facilitated by trust and respect. These are fundamental to a good doctor-patient relationship. A good relationship based on trust was important as the patients will openly communicate and tell the health professional what was going on in their lives. They are able to offer support, advice, help, or to be able to understand why they are stressed, anxious, and/or upset. It was clear when observing consultations when there was trust and the patients were openly sharing private and personal information. Some consultations were observed where the GP had to ask questions and prompt for information but this could have been due to there being a researcher in the room and they did not trust me rather than the GP.

With a good relationship patients were more likely to be honest and open, the health care professional did not need to read as much into what they are saying and how they are acting. They did not need to make assumptions or possibly feel like there was more to explore with the patient. When a GP knew a patient well they could more accurately read the signs and signals from the patient's body language. The more information the GPs had helped them engage the patient in shared decision-making about the most appropriate medication regime and thus the patient was likely to be compliant as it was the most suitable treatment plan for their lifestyle and preferences. With trust and respect the patient was more likely to take what the GP has to say onboard and engage in the appropriate behaviour to alleviate their symptoms and condition.

A consultation was observed when a patient asked for a medication and the GP told her he would have to give her a different brand and two tablets as it was cheaper. The patient was happy with this as she trusted the GP and they had a good doctor-patient relationship.

*The patient had been suffering from a bad cough and throat for a while. As she has had throat cancer in the past and was very anxious she was referred to the specialist, but she was not happy as he had not even looked in her throat and did not recommend any medication. Her husband has had the same infection and when he came to see Dr X he gave him a prescription for XXXX, she had this written down on a sheet of paper along with the repeat medication she would like. Dr Y said oh, Ok I will give you this if it worked for your husband but he is going to give it to her as two separate tablets as it is much cheaper. She did say to this 'well how come Bert got it?' To which Dr Y replied, "Well I have to watch these things, the purse strings" to which the patient replied "seeing as it is you".*

As there was a good doctor-patient relationship the patient was happy to take the cheaper, generic preparation as she trusted the GP. The GP gave the patient the medication she asked for to maintain this relationship.

The GPs also gave the impression that they knew the patient well. Sometimes they did not remember who the patients are by their name, they only remembered once they saw the patient's face. Also they sometimes could not remember the specifics of the last consultation but read the patient's notes before they entered the consulting room to give the illusion they remembered and to maintain the doctor-patient relationship.

#### *4.10.2.6 Patient Education*

Patient education involves the GP informing the patient about their condition, symptoms, risk factors, medication, and any potential side effects. Patient education is important to help the patient understand their condition and treatment regime. Comprehensive understanding improves compliance and recall and ultimately gives the patient independence to manage their own condition and treatment regime.

Education helps reduced anxiety and aid reassurance. Uneducated patients are more likely to engage in risky behaviour, they can be non-complaint or can stop taking their medication altogether and thus they need more medical intervention, monitoring and more advice and education. Educated patients have the potential to be independent and spend less time in the health care setting.

GPs educated patients using lay language and trying giving the right amount of information to aid their understanding and then subsequent recall. Know the patient meant it was easier to know what level to pitch the often complex clinical information. In consultations time was limited and the information can be complex, leaflets and/or clinical knowledge summaries were handed out to give the patient time to digest the information and come back to formulate a treatment plan.

*Dr X commented that in a 10 minute consultation it is very difficult to give enough information to allow shared decision making, you barely get enough time to alleviate their fears. He said that is why the information leaflets are so good, as they can take them away and then come back and discuss it with you.*

Effective communication, a good relationship with the patient and education resulted in higher compliance, which alleviated their workload in the long-term. These are all positive outcomes from relationship continuity. However, in some cases the doctor could have a negative perception of the patient, which is discussed in more detail below.

#### *4.10.2.7 Perception of the patient*

By knowing and having a relationship with patients the GP formed an opinion. In some cases the GPs had developed a negative perception of their patient. This was with patients who were perceived as difficult; they did not comply with their medication regime, they did not listen, engaged in risky behaviour (such as smoking when suffering from angina or lung cancer) and/or demanded medication.

GPs also developed a negative perception of a patient who frequently attended and in the clinicians professional judgment there was little physically wrong with the patient. These patients were perceived to be time wasters rather than difficult. During one surgery a GP commented about a patient who has been signed off sick with back ache. *When she left the room he told me she is one of those patients, she is in here complaining of a sore back, she was signed off for two months, yet she enters and leaves here fine and jumps on the couch with little effort, if she had a sore back she would be in pain.*

With a negative perception of the patient GPs seemed to have less patience to listen and to ask probing questions. When the GP looked to see the next patient to enter the consulting room and they saw the patient's name, these patients caused a reaction of 'oh no', they were apathetic and frustrated before the patient entered the consulting room. An example of this is illustrated from a field note extract: *Before the patient entered the consulting room Dr X said 'Oh, no!' This patient was seeing Dr Y for a while but now she keeps coming to see me, she is always in pain*

*and is a difficult person, she moans so much and doesn't really take to leaving without something so you end up just giving her pain killers, I know that is bad.'* Illustrating a GPs opinion can affect their prescribing decision making.

#### *4.10.2.8 Shared decision making*

Once the problem has been identified, the clinical and patient perspective established and the GP has educated the patient they should plan and decide on a treatment option together. In an ideal world both the patient and the doctor should be actively involved in the decision-making process. The theory is based on the premise if the patient has been engaged in the decision-making process then the treatment regime should be more tailored to their lifestyle, views and preferences and thus they are more likely to be more compliant.

In younger patients who were visiting for a minor or acute problem there frequently were not a lot of treatment options, once the decision had been made to treat the condition. The most common reason this group visited was for an antibiotic and as the practice prescribed from a practice formulary the patient received the first line preparation unless this was not suitable and they were prescribed the second line preparation. *An example of decision-making was whether the patient would prefer liquid or tablets.*

In older patients with multiple co morbidities, the clinical information is complex and these decisions involve polypharmacy. Involving patients in these decisions can be extremely difficult. Many of these were elderly and from a generation who did not engage in shared decision-making and thus do not want to be involved. They expected the doctor to tell them what to do and they would just get on with it. As many of them had known their GP for a long-time the GP was aware of their preferences, views and circumstances and well informed about

the most appropriate treatment for the patient. Many shared decisions were about dosages rather than whether to initiate treatment or not. An example of this is given below.

*....an arthritic patient who is suffering constipation side effects from her medication. She is supposed to be taking 8 a day but is only taking for 4 due to the way they make her feel. Dr X asked if she had anything for the constipation and she said yes, but that she does not like taking them. Dr X said you can also improve things through your diet, to which the patient replied “I know, I have prunes every morning.” The doctor said well you should also take some of your constipation medication, it is fine for you, and there is no point in suffering in pain. The patient agreed to go up to 6 a day and take some of her constipation medication.*

This practice valued continuity of care and good relationships with their patients. They organised their appointment system to be able to give chronic patients and/or complex patients continuity of care with their chosen physician. The practice felt patients who have complex or multiple problems need continuity. Their medical history and personal circumstances and preferences are also complex and intertwined thus it is very difficult for another clinician to pick up and understand and can be frustrating for the patient to go through their story again effecting the doctor-patient relationship. This also saves time, it is limited in a consultation and there is not time for complex patients to tell their ‘story’ from the beginning.

#### 4.11 Conclusion

This chapter has provided an overview of Rubain, the market town practice in this study. The chapter has been structured around the prescribing model which has been designed to depict the various influences and allow a visual comparison between the three practices studied. Initially, the potential influences on the patient and how they impact on the consultation were discussed. The external influences on the practice were considered and how the practice formulates them



into practice prescribing policy, essentially their macro prescribing decisions. Discussion of the collective and shared decision-making and relationships between practice staff gave context to these macro prescribing decisions. Finally, micro prescribing decisions were discussed in the consultation or interaction between GP and patient and the importance of continuity of care to patients with multiple and comorbidities.

## *Chapter 5*

### ‘ROSNISH’ ~ THE RURAL PRACTICE; A DESCRIPTION AND EXPLANATION

This section will describe the characteristics of the practice; the staff and the practice processes and systems. A model depicting the prescribing influences and how the practice was organised is presented and followed by an explanation.

#### 5.1 The Setting

##### *5.1.1 The village*

The village was set approximately 45 miles from the nearest city, in a rich agricultural area.

##### *5.1.2 Practice population and list size*

This practice had a list size of approximately 2000, with a predominantly elderly and affluent population.

##### *5.1.3 The health centre*

The health centre was a large purpose built building constructed under the Private Finance Initiative (PFI) and completed in 2005. It was well equipped with wheelchair access, sensor doors for entrance and exit of the building, handrails and low light switches are all round the building. It was light and spacious and was decorated with local art work and old black and white photographs of the village.

##### *5.1.4 Opening times*

The health centre was open 8.30am to 12 noon and 4 – 5pm for appointments; it closed 12-2pm for administration and was open 2-4pm but only for telephone calls as this time was allocated for home visits.

## 5.2 Staff

### *5.2.1 Clinical Staff*

The practice had one full-time GP (4 days) and a part-time GP (1.5 days). The practice was classed as single-handed. These GPs were married. During the period of observation the practice also had a doctor completing post-graduate training.

The practice pharmacist was part time (one morning per week), and had been with the practice for 3 years. She had previously worked in both hospital and community pharmacy. The practice pharmacist ran the anticoagulant clinic for the practice, kept the lead GP up-to-date on information from the CHP and conducted audits. Communication between the pharmacist and the practice was informal.

### *5.2.2 Nursing staff*

The practice did not have a practice nurse. The community nursing staff did some of the practice nurse roles. The practice had three full-time community nursing staff; the senior community district nurse, another full-time community nurse and a full-time health visitor.

### *5.2.3 Reception/Administrative Staff*

This practice did not have a practice manager. The practice had three part-time receptionists. The senior receptionist was also the health care assistant. She worked four afternoons a week as the senior receptionist. She had worked at the practice for 20 years and was married to the local community pharmacist. All of the receptionists had lived in the local area of the practice all their lives and knew most of the patients registered at the practice.

#### *5.2.4 Relationships*

This practice had a stable workforce with friendly and collaborative working relationships. There were two main members of staff at the practice; the lead GP and senior receptionist who would discuss and solve clinical and administrative problems and together.

#### *5.2.5 Ethos and Atmosphere of the practice*

This practice valued being patient-centred, organised and efficient. The lead GP was the dominant personality in the practice and his values predominated but were also valued by the other members of staff. He was highly motivated and organised, particularly around prescribing and long-term conditions. They valued continuity of care and being a prominent part of the local community. The practice invested time educating patients about their condition and medication so they could self-manage. This was a worthwhile investment as they had an elderly and stable population. Yoga classes were running in the practice at the request of patients.

Prescribing was valued highly and prescribing policy was regularly reviewed and refined. The lead GP valued high quality prescribing. The practice had a population skewed toward the elderly which the lead GP felt accounted for a great deal of their higher prescribing costs.

### **5.3 Communication**

The staff at this practice communicated face-to-face regularly through-out the day.

#### *5.3.1 Daily/Informal*

All practice staff would regularly come and go from reception; which was the hub of the practice. All clinical staff would try to have their lunch in the coffee room between 1 and 2pm,

in particular the GPs and community nurses which facilitated the regular sharing of information and discussing patients.

#### *5.3.2 Formal*

The practice had monthly clinical and administration meetings, which alternated every two weeks. Present at the clinical meetings were the two GPs, the health care assistant and the community nurses and at the administrative meetings were between the GPs and the receptionists.

Communication was core to this practice's culture. They valued being organised and efficient so regular communication ensured issues were brain-stormed immediately.

### 5.4 Organisation

The practice felt being organised and efficient was fundamental to running a good practice. The practice systems are described in turn below.

#### *5.4.1 Appointment system*

Patients were usually offered an appointment the day they called, unless they specifically ask for an appointment with the female GP.

#### *5.4.2 Home Visits*

The lead GP tried to discourage home visits (unless housebound or children) by offering appointments at the surgery as soon as possible (he would run a surgery till everyone who wanted to be seen had been attended to). Patients would have to wait till the afternoon for a home visit. The GP felt by encouraging patients to come to the surgery, unless it is an emergency allowed the practice to be more efficient.

#### *5.4.3 Information Technology*

This practice transferred over to Vision from GPASS during the period of observation. They began preparing months in advance to try and ensure a seamless transition. Once Vision was in operation the GPs entered the hand written notes taken during the transition to learn about the new system. The lead GP had invested time to learn short cuts for drugs he regularly prescribed in GPASS and was hoping to learn similar time saving techniques with the new system.

#### *5.4.4 Protocols*

As the current GP took on this single-handed practice in the light of Shipman everything was documented and recorded (Shipman was a GP who was a serial killer who went undetected as he was single-handed). The lead GP kept up-to-date with the literature and photocopied relevant articles as evidence of this. There were protocols for all systems which were kept up-to-date. Each receptionist had administrative protocols they were responsible for keeping up-to-date and the GPs kept the clinical protocols.

#### *5.4.5 Personal medical services contract (PMS)*

Personal medical services are local service contracts which are negotiated between the general practice and the health board. They are subject to local targets, budgets and monitoring. This contract is an alternative to the nGMS contract. This practice has negotiated a contract with the CHP for chronic disease management but was contracted through nGMS for core medical services.

The second GP was employed at the practice through the PMS contract for additional chronic disease management. This allowed the GP to continue to refer to the practice as single-handed.

#### *5.4.6 Practice accreditation*

Practice accreditation was awarded to practices before the nGMS contract and was scrapped in 2005. The accreditation raised the quality of care and teamwork within practices and was essentially an assessment of organisation. This practice was proud of its accreditation and was working towards the Quality Practice Award (QPA).

### 5.5 Systems

The practice systems pertinent to prescribing are described below;

#### *5.5.1 Repeat Prescriptions*

Once a patient was stabilised on their long-term medication, they were prescribed the medication for 3 months. At this point they were given 3 separate scripts, one for each month. They would take one to the pharmacy and the other two they kept themselves and would take to the pharmacy when their current medication was about to run out. The prescriptions were marked one, two, three, unless there was a specific instruction (such as blood pressure to be checked more closely). A prescription form has two sides, one which has the patient's name, address, CHI number, the medication being prescribed and a specific code for the GP who signed the prescription. The second side of the prescription had all their repeat medication printed out, each with a tick box. At the end of the 3 months, once they handed their last prescription to the community pharmacist, they would hand the other side of the script into reception or into the community pharmacist who delivers it to the surgery. They use the tick boxes to indicate the medications they would like to re-order. Every day the pharmacy assistant walks up to the health centre to deliver the reorder slips and collects prescriptions. Some patients are prone to losing their two repeat prescription forms. The practice is aware who these individuals are and give them a one month prescription.

Reception staff collected all the re-order forms and if they are regular repeats prescriptions or ad hoc medication, such as pain killers, reception go ahead and print the prescription forms. These go into what the practice staff refer to as ‘the bundle’, and the lead GP signs them. On some occasions the reception staff were unsure about requests to re-order medications, and these go through to the lead GP to check and to print off. Signed prescriptions were collected by the village community pharmacy in the afternoon. The other community pharmacies also come to collect their prescriptions but not as regularly. The majority of patients do use the local community pharmacy in the village.

#### *5.5.2 Regular acute prescriptions*

Some patients were on medication for a period of time which the GP did not want to make a repeat prescription. The reasons varied according to the medication and the patient. An example is an anti-depressant. Patients were monitored more closely in the early stages of their treatment, going from week to week and then month to month contact with the GP. The need for a face-to-face consultation was reduced as they are stabilised on their medication, but they would never be on a repeat prescription. Patients were on regular acute prescriptions rather than a repeat prescription to give the GP more control, to monitor more closely or because it is medication they will be taking it long-term. Patients did not need to make an appointment to get this medication; they were supposed to fill in a ‘regular acute prescription’ re-order form, which are available on the reception desk. However, the majority of the patients call reception and ask for their medication.

#### *5.5.3 Chronic disease management and medication review*

Each patient’s chronic disease management review was at the time of their birthday to help the practice stay organised but it also to stop the patients from being confused. This was also when their medication was reviewed. The nGMS contract requires patients on repeat medication to be



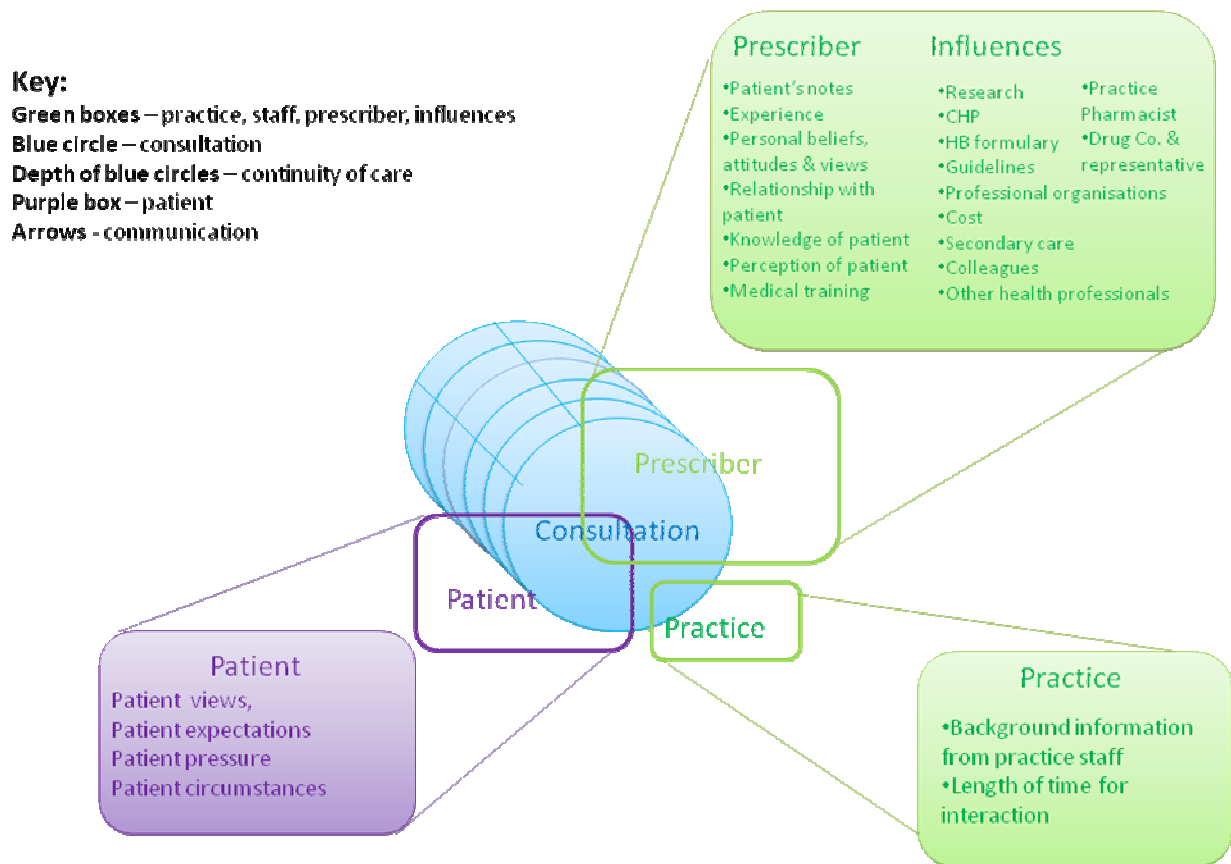
reviewed annually but this could be a paper based review, it did not need to be face-to-face. As the practice valued continuity of care, face-to-face medication reviews were seen as important to maintain this relationship in stable patients who did not attend the surgery regularly, by providing a good opportunity to chat to the patient about their medication.

Initially, the health care assistant and/or the practice pharmacist would run searches in GPASS for patients with birthdays approaching the next month on repeat medication. The GP reviewed the list and decided who should come in for a review (some patients on repeat medication such as cream for psoriasis were not called). An appointment was made with the health care assistant for tests and another was made two weeks later with the lead GP, by which time the results should be available. A letter is sent by the practice to each patient informing them they are due to attend and gives them their two appointment times (GP and healthcare assistant), if these do not suit then the patient must call the surgery to rearrange. Initially, the healthcare assistant takes the patient's family history, blood pressure, a blood sample, their weight and tests their urine. If the patient has coronary heart disease or a history of depression, they are asked if they have been unhappy lately, if they answer yes, they are given a questionnaire to fill at the time. This practice reviewed nearly all patients on repeat medication rather than only patients who have chronic disease as required by their contractual arrangements (nGMS), and will also conduct a review on patients who ask.

### 5.6 Practice Prescribing Model

The prescribing model devised for this practice is presented below, illustrating the various influences and how they have an effect on the practice organisation. The following text will explain the model in detail.

Figure 4: Roshish prescribing model



Rosnish's prescribing model visually depicts the influences upon the practice and shows how the practice values shape how they organise themselves around these influences. A key has been provided to help interpretation. A table with supporting empirical evidence can be found in appendix 7. A brief description of this model is now given to aid the reader's interpretation. A more detailed description and explanation will follow this section.

The purple box denotes the patient with the potential influences upon them.

The blue circles represent the consultation and the depth of these circles represents optimum levels of continuity of care. This practice was run as a single-handed practice, with the lead GP consulting with most of the practice population and the second GP consulting with the respiratory patients. Therefore, this practice had high levels of continuity of care, indicated by the number of blue circles.

The first green box indicates the prescriber. The first list indicates the prescribers personal influences and the second list indicates the external influences on the prescriber.

The second green box indicates the influence of other practice staff. At this practice the community nursing staff had more of an influence than at the other practices. This practice did not have a practice nurse and the community nurses would assist in this role. These nurses had lunch with the lead GP most days, where they would frequently discuss patients. In these discussions the nursing staff would update the GP on patients in the community. They would also ask for prescriptions and home visits on the patient's behalf, when needed.

The reception staff were all part of the local community and knew most of the patients. As a result patients did not report to the reception desk when they arrived at the surgery. When patients called for an appointment the receptionists knew who usually had long appointments

and would book a double appointment. They would also inform the GP of family relations within the community.

The boxes overlap the blue consultation circles to indicate their influence on the prescribing decision.

A detailed description and explanation for the component parts of the model is now given. As the patient description is standard for each practice, a description and explanation of the patient influences has been given in the previous chapter (section 4.6.1) and is not repeated here to avoid duplication.

## 5.7 External influences on practice and prescriber

Each practice is unique in how they assimilate the external influences into the practice prescribing policy. This practice's prescribing policy is formulated by the lead GP. The second GP has areas of responsibility for which she formulates her own policy. Each of these external influences are not viewed equally but in a hierarchy described in turn below.

A description of each influence was given in practice one (Rubain) so the processes of each influence at this practice are described below.

### 5.7.1 *Evidence based medicine (EBM)*

The value the lead GP placed on EBM and the processes of implementing evidence into their clinical practice is described below. The second GP felt she did not have time to keep up-to-date with EBM herself so consulted drug representatives (discussed in section 5.7.4).

#### 5.7.1.1 Guidelines

Guidelines were viewed as the ‘gold standard’ in medical care. As the practice was essentially single-handed they did not have a practice meeting specifically about a new guideline. The lead GP would read a journal called ‘guidelines in practice’ which provided helpful advice and ideas about implementing guidelines locally. The lead GP would read the guideline and modify his behaviour accordingly, and at some point update the appropriate protocol(s). During the period of observation a new guideline was published by the British Hypertension Society, which was printed off and laminated by the CHP and distributed to practices through their practice pharmacists. Both GPs pinned this in a visible location and were observed referring to this poster.

#### 4.7.1.2 Journal articles

The lead GP at this practice read a lot, he read the BMJ every week and ‘Prescriber’ every two weeks. *“Well is it just part of the job, it is good reading really, I scan the titles, and chose what I want to read, I don’t read it cover to cover, but if there is something relevant to what I do, with topics, that, .....I used to really.....it is just part of keeping up to date.”*

#### 4.7.1.3 ‘Comics’

‘Doctor’ was seen regularly round this practice and read by the lead GP but not the second GP. The lead GP referred to these magazines as a good way of keeping up on what is going on as he did not see drug representatives. He felt he did not need to see drug representatives as the information comes in the literature anyway. ‘Doctor’ and similar news type journals provide a summary of the latest evidence.

#### *4.7.1.4 Practice library*

This practice had a library which was kept up to date with the BMJ, Prescriber and 'Guidelines in Practice' journals. The lead GP photocopied any articles he felt were relevant and read and filed them as a record of what he was doing to improve his practice.

The lead GP referred to reading evidence presented in journals as not reforming behaviour overnight but as updating current knowledge and keeping of top of changes. *"It is not baseline reading, you have to keep reading otherwise you will lose it."*

#### *5.7.2 Community health partnership*

The local Community Health Partnership Head of Pharmacy and lead clinician scheduled a visit to this practice. All clinical staff were present. At this meeting the head of Pharmacy questioned some of the practices prescribing and but accepted the decisions made and respected their autonomy, stating it is important for him to get the depth and context in which prescribing decisions are made. The head of pharmacy went through the BNF chapter by chapter stating where he thought savings could be made and why such as drugs coming off patent or informing them the patent has been extended. This practice was selected as it is an outlier in the CHP prescribing as a high quality but also high cost prescribing practice.

The GPs referred to the CHP as an influence over their prescribing and a number of points were actioned as a result of the CHP visit.

The practice did not use the CHP prescribing report filtered into the practice by their pharmacist. They were top for prescribing quality and felt their aging population and rising numbers meant the cost indicators did not accurately reflect their current prescribing.

### *5.7.3 Health board formulary*

The practice used the Tayside prescribing formulary as the basis of their prescribing policy. They adapted the formulary and prescribed out with it if they did not agree; such as prescribing Citalopram rather than Fluoxetine because it had an effect within days rather than weeks. Changes in the Tayside prescribing guide were brought to the attention of the practice by the practice pharmacist.

### *5.7.4 Drug Representatives and drug companies*

The lead GP did not see drug representatives but the second GP did. The lead GP had strong views against drug representatives but the second GP felt she did not have the same amount of time for reading as the lead GP so would see drug representatives to keep up-to-date. The drug representatives left pens, mugs, notepads and information brochures of the drugs they had been promoting, which have the potential to influence the lead GP.

### *5.7.5 Secondary Care*

Secondary care had a strong influence over prescribing at this practice. Patients were discharged from hospital on medication and the GPs would read and learn about this medication to gain knowledge and experience. The lead GP would go to local meetings held by consultants to learn more about the drugs they are recommending. If the GPs had tried numerous medications with a patient and were unsure they would call the appropriate department in the local teaching hospital for advice.

The GPs became aware of what the consultants are prescribing for a particular disease and would tend to follow this trend. As the GPs look after more and more patients on the medication they would gradually become familiar with medication and would eventually start prescribing the drug themselves. An example of this is given below:

*The GP prescribed Metformin for a patient who was overweight and had polycystic ovaries(PCO). After the consultation I asked about this. The GP explained that Metformin has been prescribed for the past few years by gynaecologists. This patient has been trying hard to lose weight with little success so her PCO could be why she is not losing weight, so it is a good excuse to try it and see how she gets on.*

On occasion patients had been to an outpatient's appointment but the letter with their drug recommendations had not arrived at the surgery. The GPs took the patients' word for it. On one occasion I asked about this, to which the GP responded '*where else would they have got the name from.*'

## 5.8 Other practice staff

Practice staff had an influence on the practices prescribing policy and behaviour. The role of the different members of staff and how they had an influence on prescribing is discussed in turn below;

### *5.8.1 Practice pharmacist*

The practice pharmacist in this practice had a different role from the pharmacists in the other two practices considered in this PhD.

#### *5.8.1.1 Tayside initiative and specific practice pharmacist role*

As part of the Tayside practice pharmacist initiative, pharmacists had to do a certain amount of INR as their salaries had been secured on this. As this practice did not have a practice nurse the practice pharmacist would do this practice's INR to count towards the total INR hours pharmacists had to do to justify the CHP payment. This meant the practice pharmacist had less time to influence prescribing policy.



#### *5.8.1.2 Practice prescribing meeting*

This practice did not have a prescribing meeting. There were only two prescribers and only the lead GP was in on same day as the practice pharmacist. He left a note in her pigeonhole or opportunistically caught her if there was something they needed to discuss. Likewise, the pharmacist operated in the same manner. They would discuss any information which came from the CHP regarding prescribing and any queries which had originated from a patient interaction.

#### *5.8.1.3 Clinical role*

The practice pharmacist was only with this practice for one morning a week. The majority of her work was concentrated on the INR clinic but she would also run searches for the birthday bloods of patients on a repeat prescription. Medication reviews and audits were also conducted but not as frequently as in practice one. The lead GP liked to do his own medication reviews, as he saw it as a good way to keep in touch with the patients who were stable on their medication. The medical students ran audits for the practice as part of their project they were required to do as part of their time at practices. If a problem arose the lead GP and the second GP would audit to find out immediately what was going on rather than waiting for the practice pharmacist.

This practice pharmacist enjoyed the contact with patients and did not seem to enjoy the influencing of prescribing budgets. The lead GP was good at keeping up-to-date himself with 'best practice' in prescribing and was innovative with a strong vision and values towards doing the best for his patients.

#### *5.8.1.4 Cost-efficiency role*

The CHP had a prescribing budget and it was the practice pharmacist's role to influence prescribing cost-efficiencies. Each practice had a prescribing budget calculated on their list

size, however as this calculation was based on the list size 18 months previous and this practice's list size was growing quickly they felt their prescribing budget did not reflect their list size.

The GPs at this practice enjoyed innovative prescribing practices (i.e prescribing new drugs), which tends to result in higher prescribing costs. An example the practice were proud of was their chronic disease management prevention policies and procedures as this had been implemented here before nGMS contract. Another reason the lead GP felt they had higher prescribing costs was due to their statin prescribing policy, patients were on a statin before this was recognised as primary prevention in a SIGN guideline.

#### *5.8.2 Community nurses*

The coffee room was used by all staff in their lunch hour. This provided an opportunity for the GPs to catch up and chat with the community nurses. They would talk about patients the community nurses had seen; they would update the GPs on their patients and provide any contextual information, ask for prescriptions, and generally have a discussion about patients out in the community and possibly ask the GP to make a visit.

#### *5.8.3 Receptionists*

All practice staff regularly popped in and out of reception. The receptionists had been members of the local community all their lives and knew most of the patients well. The patients did not report to reception when they entered the consulting room, they just went and sat down as the receptionists knew who they were. Two of the receptionists had worked at the practice for 20 and 16 years respectively. They provided the GPs with background information about patients, if required. As the lead GP told me on one occasion *the receptionists only tell him who is related to who and the full story once he has put his foot in it.*

The GPs would listen to the advice and information provided by colleagues but ultimately the GPs made the prescribing decisions.

## 5.9 The Prescriber

The GPs had core influences which affect each prescribing decision. These influences were not given equal weight so are listed in their hierarchy below:

### *5.9.1 Experience*

The GP's experience had the strongest influence over their prescribing. They had become comfortable and knowledgeable about a range of medication. The lead GP had invested time with the IT system to create short cuts with the range of drugs he liked to prescribe, which did promote habitual prescribing.

### *5.9.2 Personal beliefs, attitudes, views and preferences*

Through their experience and years in practice GPs can build and strengthen beliefs, attitudes and views. They had their own preferences of medication which has been established through their experience. They knew this medication well and were comfortable prescribing it. The GPs had also formed opinions of certain medications which other GPs would not agree with, such as the efficacy of a drug or the severity of the side effects.

The GP's prescribing decisions were also shaped by their values towards quality and cost effective prescribing. At this practice the GPs valued quality prescribing but also appreciated the NHS has limited resources. They would prescribe medication they thought the patient needed rather than prescribing a generic if they thought it was not as suitable. An example of prescribing a more costly drug is in this practices antidepressant prescribing:

*The CHP prefer GPs to prescribe Fluoxetine as a first line antidepressant but this practice tends to prescribe Citalopram because of the length of time it takes to have an effect. . The lead GP told me Fluoxetine takes 3 to 4 weeks where Citalopram takes 7 to 10 days, and feels it usual takes time for patients to present with their symptoms so when people have been low and depressed for a long time already you can start to make a difference more quickly with Citalopram.*

This provides a good example of the GPs values towards their patients and the CHP budget. This practice is prepared to trade off the added expense for the speed with which the drug will take effect.

The GPs at this practice had continuity of care with nearly all their patients so they also had knowledge and experience of the current patient, their circumstances and conditions, and experience of their views and opinions towards medication.

### *5.9.3 Knowledge of the patient*

The lead GP had been at this practice for over 7 years and for most of those years he had been practicing on his own. Thus, he knew the majority of his patients, in particular those who attended regularly and those on repeat medication. As this is a small community, the GP knew some information about his patients who did not attend, such as where they lived or about their lifestyle. The second GP was responsible for women's health and respiratory problems so also knew the regular attendees well.

Caring for their patients over such a long period of time they knew about their medical history but also to know about their family and social life, their issues, concerns, problems, support networks and hobbies. They were frequently caring for generations of families and for relatives

which gave them insights into more medical history than possibly the patients had revealed in a consultation. All this information was dependent on how long the patient had been registered and then the frequency of a patients visits and how much of a relationship and trust has been established.

### 5.10 Interaction/Consultation

An interaction or consultation is a meeting of a GP and patient in the surgery or at home, in some cases they will know each other well (patients with long-term conditions) and in other cases not so well (fit and healthy presenting with acute problems). As one GP does the majority of consultations with an elderly practice population the GP seemed to know most of his patients well. Through regular consultations GPs and patients built a relationship, gained knowledge (GP learns about patient and patient learns about their condition and treatment) and build trust which all together facilitate effective communication. This communication helped gain more knowledge and expedited shared-decision making. This is known as continuity of care and is expressed in the model through the blue circles.

The structure of an interaction was described and illustrated in practice one. The influences at work in a consultation and their processes specific to this practice are described in turn:

#### *5.10.1 Continuity of care*

The various aspects of continuity of care are considered below. Descriptions of each construct has been given in practice one. The section will consider how these effect prescribing decisions in 'Roshish'.

#### *5.10.1.1 Patient's notes*

A medical record of each consultation is kept in a patient's notes. Each set of notes also contain the patient's name, address, age, past medical history, any medication they are on or have been on, allergies and previous visits at a GP with the diagnosis and outcome of the consultation. At this practice the lead GP did not always read the patient's notes before they entered the consulting room. This very much depended on how frequently they consulted. However, the second GP invariably read their notes. As this GP only consulted once a week she looked at the last or last couple of entries into the medical record. The lead GP was comfortable referring to a patient's notes during the interaction if necessary to check their medication history, including any allergies, and the central computer system for biomedical results.

#### *5.10.1.2 Relationship continuity of care*

Through numerous consultations the doctor and patient built a relationship. During this process of building a relationship the GP came to know the patient, their preferences and values, and about their context and circumstances. Most of this information was not recorded in their notes, but known tacitly by the GP. Through this period of time the GP had educated the patient about their condition, listened to their concerns and apprehensions and helped them address these issues. As a consequence they established a relationship built on trust and respect.

#### *5.10.1.3 Knowledge of the patient*

When the GPs knew their patients they frequently saved time as they already knew a lot about their patients, they did not need to look up the patient's notes or ask for more information to aid their decision-making, illustrated below:

*A patient was very distressed. She said she had had trouble sleeping. The GP starts by asking her what is wrong. The patient goes on and tells her what seems to be a multitude of problems*

*which the GP seems to be informed about: well certainly informed about the on-going problems, not so much the later ones (I can see her struggling to remember all the family details).*

Over time the GPs had learned about where a patient's domestic arrangements, their medical history, any significant past medical events and the impact of these on the patient. Also about their personality, their support networks, hobbies to name a few. In one consultation observed a patient was suffering from Alzheimer's disease and was in consultation with the GP by himself, below is an extract from the field notes from the consultation:

*This patient was complaining about a cold and said he had been suffering for about 2-3 weeks. The GP asked him if he still had his blue inhaler, he said no and was given a prescription to be used four times a day until this clears up. When I asked the GP about the prescribing decision he told me the patient was forgetful and the joking was to disguise his dementia, and that he had actually seen him about this a week before. I asked how comfortable he was giving a script to a patient who was likely to forget, and the GP told me his wife is very good, she knows exactly what he is like and will be waiting for him in reception and will get the required information and ensure he complies with the instructions.*

#### *5.10.1.4 Preferences and values*

Through consultations with patients the GPs learnt about their preferences and values. Whether the patient liked to be educated about their condition and engaged in some form of decision-making about their treatment or whether they thought '*the doc knows best*'. With patients who consulted regularly the GPs came to know about the patient's values and preferences. Often the preferences were over liquids rather than tablets as the patient has problems swallowing.

They were aware of what aspects of a patient's life were important to them and where they were prepared to compromise.

#### *5.10.1.5 Relationship with patients*

Effective communication, trust and respect were important aspects of the doctor-patient relationship as the patients would tell the health professional about what is going on in their lives. The GPs at this practice spent time building a relationship with their patients and befriending them to improve this relationship. The lead GP liked the patients to come if they think they had a problem, he had the view that many problems can be dealt with less pain and less invasive treatment if caught in time. The lead GP had spent time with the patients trying to understand their past medical histories and what has been going on and is prepared to spend multiple consultations addressing their issues to save time in the future. The community nurse told me *"the patients speak very highly of them"* when referring to the patients at the practice, indicating a good level of trust. A detrimental aspect of this trusting relationship is described below:

*"They discuss the patient that was admitted to hospital this morning.....Whilst they are in the waiting room the receptionists find out that the man's condition had deteriorated whilst XX was on holiday but they did not want to see a locum, so they had waited until XX had got back before they called. Then they were not forceful about getting a visit or appointment with XX. XX was not amused, he was annoyed more than angry, saying that this man could easily die now. Why did they not come in and see the locum?"*

The new purpose build health centre and patients being offered an appointment usually within 24 hours was also likely to make patients feel more cared for. Sometimes the GPs did not remember the specifics of their last consultation with a patient but read the patient's notes



before they entered the consulting room to give the illusion they remembered, to maintain the doctor-patient relationship.

#### *5.10.1.6 Patient education*

When patients were newly diagnosed they needed to be informed about their condition, symptoms, risk factors, medication and any potential side effects. Good communication ensured this information was imparted at a level the patient would understand and/or the patient felt comfortable asking questions. The ultimate aim at this practice was to make patients as independent as they can be through education and empowerment. The second GP described patient education as: “*the building blocks of future prescribing decisions.*” Through consultations the patient’s understanding deepened and they came to terms with their illness and were able to engage in decisions about their treatment. The GPs did not try to educate the patients in one consultation; in some cases they gave the patients information leaflets to help them digest the information.

*This patient had a sore back. The GP examined her and felt she needed some pain relief. She prescribed her some diazepam, explaining it was just a small dose of 200mg. The patient was concerned that she did not want to take anything which will make her drowsy (she was in consultation with a small child) and that she was looking for advice. The GP printed off an information sheet about back pain and told the patient to take the medication if required and to come back if it does not get any better.*

The lead GP at this practice did not believe in ‘heart sinks’ (colloquial term used by GPs to refer to patients, where the GP’s heart sinks when they see the patient’s name) and believed they are patients who do not understand their condition or have issues which need to be addressed. As a result he was prepared to spend time listening to patient’s issues and concerns,

educating them about their condition and trying different treatment options. He told me “.. *believes patients attend because they're uncertain, they're scared or they're stressed either because of their condition or because of their medication and if you can alleviate that then they are happy to go and they can live with their condition.*” In some cases patients needed to learn to live with their symptoms or side effects and by spending time ensuring they understood they could learn to live with their condition.

Some patients were hostile to the information being broken by the GP. They did not like being told about their risk factors. In one consultation a patient was very resistant to coming off her HRT. *The GP tried to educate her about her risk factors and kept checking she understood what she was being told. She understood her risk factors but was prepared to take the risk as she was scared of her menopausal symptoms returning. The GP went back through the information emphasising her risk factors but she was still very resistant so the GP chose to leave this issue till her next consultation. The patient was also suffering from high blood pressure and gastric problems so would be back in the not too distant future.*

Patient education was important for patients to feel equipped and informed to be able to engage in discussions about their treatment.

#### *5.10.2.7 Perception of the patient*

By knowing and having relationships with patients the GPs form an opinion. In some cases the GPs had developed a negative perception of their patient, such as the patient being non-compliant or always looking for medication. The frequency of the patient's visits can also affect the GPs perception. An example is given below:

*“Whilst observing the second GP at the practice, the medical student came in to update the GP on his consultation with the patient. The GP was not happy that the medical student had sent the patient away without having seen her first. The GP explained to the medical student that this lady is not likely to be complaining, if she has come then it will be something worth consulting about. The medical student had told the patient to buy a topical painkiller and a strap. The GP explained that this lady gets free prescriptions and they give out supports to the patients at the surgery for free, and the lady would have known this, ‘what will she think’. The GP went on to explain that topical painkillers are expensive and that she would have given her a prescription for this. The GP knew how frequently this patient consulted, deeming each visit worthwhile, also demonstrating a knowledge of the patient’s financial circumstances, showing that this would influence whether a prescription is written or not.”*

#### *5.10.1.8 Communication with the patient*

The foundation of a good doctor-patient relationship is good communication. To be a good communicator is the ability to both listen and convey information. The GPs have been practicing for a number of years so were fluent in these skills. Communicating with patients can be a very difficult job; this depends on the information being disclosed and the emotional state of the patient. In early diagnosis the GP could be communicating difficult information, educating the patient about their condition, prognosis and then trying to engage the patient in shared decision-making about their treatment. Treatment options were often not clear and were discussed as part of ‘trial and error’, so on occasion the GPs had to make the patient aware of the potential side effects and imparted complex information for a decision which may need to be reviewed. Elderly people are more prone to memory loss problems and confusion which can mean the information and discussions need to take place more than once.

The GPs at this practice saw good communication with patients as the foundation of the doctor-patient relationship. *On my first visit at the practice I was asked to design a poster for the practice informing the patients that there would be a researcher at the practice and what the project was about.* However, most communication between doctors and patients took place in interactions either in the surgery or the patient's home. As stated, medical information is often not black and white, which meant it was important for patients to be able to ask questions to address their concerns and issues. The lead GP told me he "*values communication as it is important to talk about emotional aspects*" allowing the GP to engage in a discussion with the patient about their concerns.

The lead GP was of the opinion that patients should be informed of their prognosis early on so they have time to come to terms with their illness. The organisation of this practice's appointment system meant the patients had an opportunity to come back the next day if they had any issues which they would like addressed. The organisation also allowed the GP the opportunity to ask the patient to come back for another appointment if they felt it was too much information to disclose to the patient in one consultation. Unfortunately, when sensitive issues were being addressed in consultations I did not observe these to protect the patient's privacy and to maintain the doctor-patient relationship.

This practice had a large elderly population, where the practice felt the majority were well educated and compliant. They seemed to be listening to what the GP was telling them. They asked questions and seemed to be taking the information on board. The lead GP was a firm believer in a good relationship with patients; patient education and good communication to empower patients to self manage their condition.

#### *5.10.1.9 Shared decision making*

Both the patient and the doctor should be actively involved in the decision-making process; however this was not always the case. Shared decision-making is based on the premise that if patients are engaged in decisions about their treatment then they are likely to be more compliant.

The GPs were constrained by time; they had, on average, less than 10 minutes to convey complex information to patients. Those who were suffering from long-term conditions needed time to be educated about their condition and for the GP to ensure they understood, which often required multiple consultations. Much of the clinical information was complex; in patients with multiple morbidities these decisions involved polypharmacy. Involving patients in these decisions was extremely difficult. The practice was also constrained by budgets and finance and frequently did have a number of treatment options to offer.

In young patients with acute problems the GPs at the practice prescribed from the practice formulary. As illustrated above with older patients and patients with chronic conditions many prescribing decisions were not straight forward. However, some patients, in particular the elderly, did not want to be engaged in their decision-making. An example is given below:

*Although this patient was in the practice for a medication review, they spoke mostly about his hips as they have been giving him a lot of bother. The patient's blood pressure was high but as the patient was over 90 the GP said he would prefer to double the dosage rather than prescribe something else. The patient said he would take and do whatever the Doc tells him to do.*

Some patients had strong views for or against taking medication and despite good communication and education about risk factors they were strongly opposed. These prescribing

decisions were difficult to observe as discussion often took place over a number of consultations. The lead GP was observed trying to get to the root of the patient's problem and then leaving the issue and trying to address it again before the consultation drew to a close.

*At the beginning of the consultation the GP had mentioned her HRT and said that he would like to get her off it soon, but it was her decision. She did not like this idea so the GP left it and went on to the matter in hand. After this issue was addressed the consultation came round again to her medication with the GP explaining he felt that he had to put her on something for her high blood pressure and explained her HRT was a risk factor. The patient has suffered from what the GP thought was a minor stroke but what was the point in putting her for a scan when she is at risk. The patient then seemed more open to address the HRT issue.*

Prescribing decision making was based on a good relationship between the GP and patient where the patient trusted what the GP was telling them and was open to informing the GP about their condition, complying with their medication regime and attending the surgery again if anything changes.

### 5.11 Conclusion

This chapter has provided an overview of Rosnish, the rural practice. This chapter has been structured around the practice's prescribing model, illustrating the various influences on the practice and how the practice was organised. A description of how each of these influences has had an effect and the processes the practice had in place to deal with these issues has been provided.

‘HAUN’ ~ THE URBAN PRACTICE; A DESCRIPTION AND EXPLANATION

This chapter will describe the characteristics of the urban practice; the staff and the processes and systems. These descriptions provide contextual information to aid explanation of the prescribing model, the influences on prescribing and how the practice responds to these influences.

6.1 The Setting

*6.1.1 The city*

This was a city centre practice, located in the heart of a small city centre close to amenities and shops. There were a number of community pharmacies within a short distance of the practice.

*6.1.2 Practice population and list size*

This practice had a list size of approximately 8500, although the population of the practice could fluctuate by 400-500 when the academic year started and finished due to the large number of students registered at the practice.

This practice population was more deprived and with a wide range of socio-economic problems, including drug misuse, in comparison to the other practices studied. Some of these patients habitually attended on a frequent basis and could be disruptive.

*6.1.3 The health centre*

The building was old and not purpose built. It lacked the fresh, clinical feel of ‘Roshish’ but was fit for purpose. The majority of consulting rooms came off the waiting area, these rooms were not soundproofed and as a result the GPs did worry about patient confidentiality.

The patient call system in the waiting area was not liked by the receptionists who reported complaints from patients. The patients were issued with a card when they reported to the reception desk. The GPs pushed a button from their room when they were ready for the patient and the patients could see by the last number hanging on the hook as to who was next. However, as patients did not turn up in sequence, the receptionists tried to give the appropriate card for the appointment time but frequently the cards were out of sequence or missing.

#### *6.1.4 Opening times*

The surgery was open Monday to Friday, 8am to 6pm. The times of surgeries varied, in the morning they usually started 8.30, 9, 10.30 or 11am. The afternoon surgeries started any time between 1.15 and 3pm.

Unlike the other two practices, this practice did not close regularly during the working week. This practice would catch up with administration and training during protected learning time sessions.

### **6.2 Staff**

#### *6.2.1 Clinical Staff*

This practice had seven GPs, two full-time and five part-time. The GPs varied in age and length of time with the practice.

The practice pharmacist worked part-time (3 days a week). She had previously worked as a pharmacist in primary care with the role of influencing GP prescribing behaviour.



### *6.2.2 Practice Nurses*

There were one full-time and two part-time practice nurses and a full-time health care assistant. The practice also had a specialist nurse who would come in and run their Asthma and COPD clinics.

### *6.2.3 Reception/Administrative Staff*

This practice had four core administrative/reception staff and a further nine receptionists. The core administrative and reception staff were the practice manager, the IT administrator and two senior receptionists. The practice manager and the IT administrator (second in command) had previously worked as receptionists and were actively involved in the running of reception. There were also two part-time senior receptionists who were responsible for the day-to-day running of reception.

With such a large number of part-time staff a large part of the practice manager's role was the organisation of reception, appointments and holidays. She was also responsible for the maintenance of the building, the business and finance, and human resources.

### *6.2.4 Locums*

The practice used locums to cover holidays and sick leave. In comparison, to 'Rubain' this money came from the practice budget and was for 'crisis management' rather than routine time off for the GPs.

### *6.2.5 Practice pharmacist role*

This practice pharmacist primarily worked on reviews of individual patients, reviewing discharge medication or providing advice about complex interactions. She also did medication reviews and audits but these took a backseat to the immediate requests of advice for individual patients.

Each practice had opted to organise themselves in different ways and although the practice staff had the same job title they did not always have comparable roles.

#### *6.2.6 Relationships*

All the practice staff seemed to have a good working relationship. Due to the number of staff the practice had groups that were friendly and not exclusive. The receptionists were very sociable and dined together at lunchtime. The GPs were never observed together and did not have the same jovial relationships as were present in 'Rubain', however, seemed to have good working relationships when they did get together.

#### *6.2.7 Ethos & Atmosphere of the practice*

This practice saw themselves as the modern practice with a high number of part-time staff and modern communication strategies. They were patient centred and strived to do the best by their patients but had not organised themselves to achieve this. The practice did not have the same processes, systems and procedures as had been the case in 'Rubain' and 'Roshish'. They did not pride themselves on being organised and systematic, and did not value being consistent in their prescribing behaviour. The practice did not have a senior partner and was proud of this egalitarianism but with their practice manager so heavily involved with reception the researcher felt the practice lacked leadership.

### 6.3 Communication

The practice did not place a high value on face-to-face communication as had been the case in the previous two practices and communicated via email.

### *6.3.1 Daily*

The clinical practice would communicate via email. Staff would come and go from reception but would not 'chat' as in Rubain and Rosnish. The receptionists communicated with the clinical staff by leaving messages on Vision (the clinical IT system see 6.4.3).

### *6.3.2 Formal*

The practice had one regular weekly meeting with the community nursing staff on alternate Tuesdays and Wednesdays to try and ensure most GPs could attend. The majority of GPs worked on a Monday so they had a scheduled coffee break but this was frequently used and time to catch up when running behind with appointments. The practice did have meetings with the practice pharmacist, business meetings and administrative meetings but these were as and when required.

Arranging prescribing meetings was difficult due the number of part-time GPs and the practice pharmacist also working part-time. The pharmacist would meet with one GP to review prescribing projects and audits. This is where decisions were made and then sent round the other GPs by email for comment.

Due to the number of both clinical and administrative part-time staff the primary means of communication was via email.

## **6.4 Organisation**

### *6.4.1 Appointment system*

The practice organised itself so that the majority of appointments were bookable on the day. 70% of appointments were bookable on the day and 30% in advance. The appointment system was monitored by the practice manager to ensure there were sufficient on-the-day appointments

to meet the nGMS contractual arrangements; however, this was at the expense of advance appointments. Situations were observed where a GP would like to see the same patient again so they would book another appointment themselves during the consultation and were frequently left with no option but to book an on-the-day appointment as there were no advanced appointments available. This resulted in the on-the-day appointments being full minutes after the phone line opened in the morning. Some GPs would add extra hours to their surgeries to cope with demand but there were only three GPs who did not have young children and were able to do this.

The GPs valued continuity of care with some patients. This practice struggled to work within the constraints of the nGMS contract to offer continuity of care.

#### *6.4.2 Home visits*

Patients were asked to call before 9am to arrange a home visit. Arrangement was at the receptionist's discretion. These visits were assigned to the GPs but the GPs could see each other's home visits and use their own discretion and common sense and on occasion visit a patient assigned to another GP.

#### *6.4.3 Information technology*

The clinical information technology system used by this practice was Vision during the period of observation. This system was the primary means of communication between the GPs and receptionists.

### **6.5 Systems**

This practice had two systems which were important for prescribing. These are described in turn below.

### *6.5.1 Repeat systems*

Patients requested repeat medication by ticking the prescription re-order form (the tear off slip on the right-hand side of the prescription). The re-order form was posted in a box in the surgery, handed into reception, or posted. Alternatively, patients could call the surgery and leave a message on an answer machine solely for repeat prescription use, or they could email the surgery with their request. The practice had a policy to process these within two days of receipt, although it appeared to be within one working day. A senior receptionist processed the prescriptions and highlighted any issues on the right-hand side of the prescription for the GP to see before they sign the prescription (possibly prompting a look at the patient's notes).

### *6.5.2 Special request*

Special requests were for medication which the patient would be taking for a period of time where they would need to re-order but where the GP would like more control over than a regular repeat prescription.

### *6.5.3 Chronic disease management*

The nGMS contract requires patients on repeat medication to annually have their medication reviewed. Reminders would pop up on the clinical information screen during a consultation to inform the GP the patient's medication is due for review. These pop-ups would also appear for QOF related issues such as blood pressure needs to be checked. If the GP or pharmacist had time in their consultation they would do some of these checks and reviews. However, if the consultation was overrunning these would be left until the patient's next visit. If a patient does not attend the surgery they would not be picked up.

This section has provided a description of the practice characteristics and organisational and clinical systems to give context to the remainder of this chapter. Some interpretation has been given to guide the reader to some of the differences between the practices previously described.

## 6.6 Haun practice prescribing model

A prescribing model has been devised for this practice. This model has been designed in keeping with the previous models to allow the reader to quickly see the differences between how the practices communicated and organised themselves around the influences on prescribing.

A brief description and explanation of the model will now be given to aid the reader's interpretation (a table with supporting empirical evidence can be found in appendix 7). A more detailed description and explanation of the model will be given in the subsequent sections.

The purple box represents the patient and their personal influences.

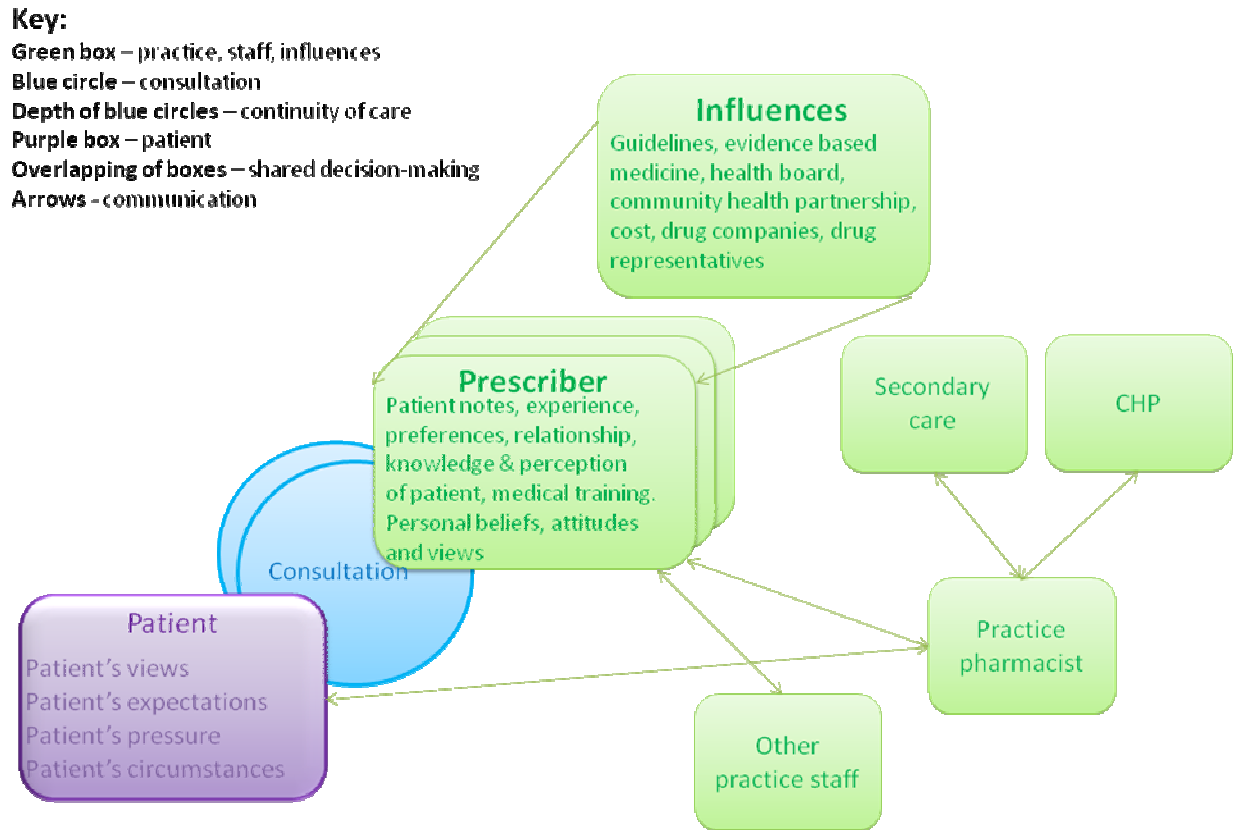
The first blue circle represents the initial consultation and the second blue circle represents the potential level of continuity of care. Due to the high number of part-time staff this practice struggled to offer optimum levels of continuity of care.

The top green box represents the external influences on the practice. The following large green box represents the prescriber and their personal influences. The external influences went straight to the prescribers, represented by the lines between the influences and the prescriber boxes. Unlike Rubain, the practice pharmacist was not the main mechanism by which these influences filtered into the practice. Secondary care prescriptions were checked by the practice pharmacist and the CHP influences on prescribing were filtered through the practice pharmacist. This is represented by these boxes and the lines of communication only pointing

towards the practice pharmacist. The practice pharmacist would communicate and provide prescribing advice on individual patients; this is represented by the line of communication between the practice pharmacist box and the prescriber box. The pharmacist also consulted with individual patients and this is represented by the line between the pharmacist and patient boxes. The final green box represents the practice and community nurses who would inform GPs about individual patients and on occasion ask for a consultation or prescription on the patient's behalf. In Rubain, there was a high level of face-to-face communication and shared decision-making among the practice staff and this was indicated by the green boxes overlapping. In the Haun's prescribing model the green boxes are not overlapping to show the lack of face-to-face communication and shared decision-making.

Each of the boxes are now described in detail. The prescribing model for 'Rubain' was described in detail, providing a description and explanation of the influence of patients so has not been given here to avoid duplication.

Figure 5: The Haun practice prescribing model





## 6.7 External Influences on Practice and Prescriber

This section presents the standard influences on all practices in Tayside Health Board with an explanation as to how Haun assimilates these into practice prescribing policy. These influences were not viewed equally but in a hierarchy and are described in turn below.

### 6.7.1 Evidence based medicine

Evidence based medicine is the process of evidence being implemented in clinical practice. Evidence arrived in the practice from various sources such as academic journal articles, guidelines and synthesised means in news type journals. The GPs felt overwhelmed by the volume of information they were expected to read, as one GP at this practice explained: *in primary care you have to keep learning yourself and try and stay on top of it.*

#### 6.7.1.1 Guidelines

Guidelines were viewed by this practice as the ‘gold standard’ in evidence based medicine and had the most dramatic effect on their prescribing behaviour. When a new guideline was published the practice pharmacist would read the guideline and have a meeting informing the GPs of the recommendations. In every meeting observed, the GPs who had attended agreed to modify their behaviour accordingly with little disagreement or discussion. As this excerpt from field notes illustrates; *they all agreed with the information in the SIGN guideline, there were no real comments, everyone said it was fair enough. They all agreed to treat cholesterol over 8.* This excerpt is to illustrate the effect new Guidelines had on prescribing behaviour the effect of the pharmacist and the practice prescribing meetings are discussed in sections 6.81 and 6.8.1.2.

#### 6.7.1.2 *Journal Articles*

All GPs at the practice received the British Medical Journal. This journal was regularly seen in the GPs consulting rooms but never being read. It could be the case the researcher did not see the GPs reading. One commented about reading journal articles:

*“Dr X told me his prescribing was shaped by new evidence, through new guidelines coming out. I asked about journals and he said no, he does not read them anymore as he does not have the time. He went on to say he used to when he was younger but he said some of the evidence there is flawed and GPs do not have the skills to critically appraise journals.”*

The practice pharmacist subscribed to ‘prescriber’ but reported reading this with a caution as it can be drug company biased.

#### 6.7.1.3 *‘Comics’*

‘Doctor’ was seen regularly around this practice and one GP was observed reading this regularly in the coffee room at lunch time. She did not read every article but flicked through and read what caught her eye.

#### 6.7.1.4 *Practice library*

This practice had a library but was as an office for administrative staff. There was a wide section of books but it did not appear to have been kept up to date.

In Rubain the practice pharmacist filtered evidence into the practice and Rosnish was organised in such a way to allow time for the GP to read. At this practice only one GP seemed to have the time or the motivation to keep up-to-date with the literature and evidence personally (this is a requirement of annual appraisal and revalidation for all GPs). The practice pharmacist had email communication with other practice pharmacists and would circulate any relevant

information round the practice by email; however, it was unclear whether this was read in detail.

### *6.7.3 Community health partnership*

The practice pharmacists were employed by the CHPs but worked in general practices. Their role was to influence GPs' prescribing behaviour. The CHPs were in regular communication with the pharmacists through regular meetings and by email, informing the pharmacists of the latest topics for change which had been agreed by the CHP clinical leads. The majority of these projects were cost related but CHPs encouraged the pharmacists to put a quality slant on their pitch to the GPs. In the Haun the practice pharmacist would circulate emails informing the GPs of the required changes to their prescribing. These cost changes were not always warmly received by the GPs and were de-motivating for the pharmacist. For example: *The practice pharmacist complained about doctors having to switch patients between generic medications for very little money, but she is pressured by her boss and yet they have just written a prescription for medication at £35,000 for one course of medication for one patient.* The cost efficiency switches resulted in extra work; reviewing lists of patients on the medication, the actual switch on the computer and generating letters to patients informing them of the change. In some cases the patients were not happy with these changes or could not tolerate their new medication which resulted in additional consultations with the GPs. The cost savings in one patient were minimal but across the population of patients the savings could be significant.

The GPs and the practice pharmacist did appreciate the NHS has limited resources but found changing medications for minimal cost savings frustrating as they would be changing them again when another drug was cheaper.

An expensive prescription was authorised by the lead pharmacist for the CHP. This excerpt from field notes gives the context behind the prescribing decision:

*There was a note in reception for the practice pharmacist from Dr XX asking her to check a prescription dose and the monitoring which is required. The patient had broken his leg, but is a drug user so his leg won't heal and he has a deep infection in the bone. Dr XX wants to prescribe an antibiotic which is very expensive. The practice pharmacist checked the patient's notes and Martindale's pharmacopoeia. He needed weekly monitoring and blood tests but the pharmacist felt it was highly unlikely he would turn up to the practice each week. She did not see any contraindications so printed off the prescription and writes a note to Dr XX recommending weekly dispensing so they can do the blood testing. She also typed an email to the lead CHP pharmacist detailing the context and circumstances and explaining it will cost £33,780.*

This excerpt helps explain some of the frustration felt by GPs and pharmacists when they are asked to make cost based switches for minimal savings in patients who have paid their taxes, which results in increased workload, yet they are asked to write expensive prescriptions for patients who do not seem to care about their health.

The CHP compares practices against one another by various prescribing indicators and presents this in a report. The practice pharmacists are expected to present and interpret this report to the GPs; however the Haun did not use this report. They did not believe the indicators and the data in the report were robust and valid enough as they did not take account of the practice population. This data is only based on cost and volume and does not account for appropriateness of prescribing. This practice had a large student population and therefore had low cost prescribing. The pharmacist's views towards these measures are shown in this excerpt

from field notes: *The practice pharmacist tells me that the indicators are flawed as they use very crude analysis tools. They do not take account of the differences in populations, such as this practice has significantly less old patients which could skew the data.* The practice pharmacist was keen to see other prescribing indicators which would more accurately measure quality and cost effective prescribing. This practice performed well against the cost based indicators but not for the quality indicators.

The CHP prescribing indicator report was a big influence on the GPs prescribing in Rubain but Rosnish and the Haun did not place the same value on the report due to their skewed practice populations. The report appeared to be one of the CHPs behaviour change mechanisms but had no effect if it was not valued by the practice.

#### *6.7.4 Health board formulary*

Unlike Rubain and Rosnish, the Haun did not have its own formulary. They used the Tayside prescribing formulary, which was available through their clinical prescribing system, but they did not modify it as the other practices had chosen to do.

It was not clear how much the prescribers adhered to the prescribing formulary, as one GP stated *“the longer you are qualified the more you move away from formularies.”*

#### *6.7.5 Drug representatives and drug companies*

The practice had a diary for drug representatives with one appointment per month. The senior receptionist informed the researcher the diary opens in January and is usually full by March, but they also get drug reps in for protected learning time. During the period of observation meetings were scheduled and drug representatives were invited to conduct a short presentation

and provide lunch. The representatives provided lunch in exchange for a five to ten minute presentation about their company's latest drug. An extract from field notes are presented below:

*The rep is in to promote XXXX which are second line after Metformin. The drug rep quickly mentioned they were on the Tayside formulary, and asked how much of this is prescribed and no one answers, after a silence the practice nurse tells him they only have two or three patients on it. No one seemed keen to tell the rep about their prescribing practices. He made a comment/joke about this being a hard audience and Dr X stepped in and made a comment. The drug representative recited a marketing spiel about how good their drug is over others and how cheap it is. The practice pharmacist asked him when should you initiate someone on it? She then asked what happens when you have tried X and Y? He told her it could be that they have not tolerated it but usually 90% tolerate them.*

*This is the first time I have seen the rep being used as a source of advice and I asked the practice pharmacist about this after the meeting. She said they can be a good source as they know a lot about their drugs but their answers have to be interpreted with caution "it is not what they tell you, it is what they don't tell you" she commented.*

The practice claimed to only see drug representatives once a month and at protected learning time event (PLT) but additional meetings were scheduled with drug representative input. All the practices saw drug representatives and all reported them having little influence. However, it was highly likely they felt obliged to say this to a researcher. It was very difficult to observe how much of an effect drug representatives and drug companies actually had on each practice.

#### *4.7.6 Secondary care*

Secondary care influences prescribing in primary care by recommending medication after a patient's outpatient visit or consultation with a consultant and after a hospital visit patients are frequently discharged on new medications. The GPs in the Haun considered that they had to learn about the medications which secondary care was prescribing. They spoke of secondary care as an influence on their prescribing behaviour as they became aware of the trends in consultant prescribing. The GPs generally followed the consultant's advice although the outpatient and discharge letters went to the practice pharmacist for review before the patient was initiated on the medication. Many of these recommendations were handwritten and frequently hard to decipher and were for medicines which were expensive in primary care so the pharmacist would recommend a cheaper alternative. The excerpt from fieldnotes presented below illustrates the influence secondary care has on primary care;

*The practice pharmacist conducted an audit of their PPI prescribing and found they have a high number of patients on the expensive PPI. As the GP helps the pharmacist identify patients for review she says "secondary care have definitely influenced some of these patients."*

### 6.8 Other practice staff

This section describes the influence the practice staff had on GPs prescribing behaviour.

#### *6.8.1 Practice pharmacist*

The Tayside practice pharmacists' initiative provided practices with a pharmacist to aid their prescribing. As practices and their populations were diverse pharmacists were given a wide remit and autonomy to meet the needs of their practices.

#### *6.8.1.1 Specific practice pharmacist role*

The Haun was a laid back practice, which was the style adopted by their pharmacist. The practice and the pharmacist were aware that the NHS has limited resources, so the practice pharmacist viewed part of her role as cost efficiency. She also had a clinical role in providing advice to GPs on individual patients, reviewing outpatient discharge letters and consulting with patient in medication review clinics.

#### *6.8.1.2 Practice prescribing meeting*

The general, day-to-day operational prescribing work such as running and reviewing audits was discussed between one GP and the practice pharmacist and emailed round the other GPs for comment. If there was a more strategic issue the GP and the practice pharmacist would brainstorm the issue, formulate a proposed plan of action and then send round the other GPs for comment. Usually the GPs tended to agree, their comments were about excluding certain patients because they were aware of their current circumstances.

*The practice pharmacist goes on to tell me they have good communication. She has a prescribing meeting with Dr X where she raises the prescribing issues she has and Dr X helps her refine the question and then she emails it round asking yes or no for the target area. The other GPs usually reply back and say 'send me the list of patients', or 'yes fine, but exclude X, Y, Z'.*

The practice would also have ad hoc prescribing meetings to review prescribing policy. These were prompted by the publication of a new guideline or any major changes in CHP policy. As the pharmacist and a number of the GPs were part-time these were scheduled for a Friday to include as many prescribing staff as possible but this did mean some prescribers were excluded. The practice manager, one practice nurse and two GPs were seen at every practice meeting



observed. The meetings were not punctually attended, but the staff would discuss other issues or ask advice from one other about an individual patient while they waited for the other GPs. The practice pharmacist took the lead in the meetings and would present issues for discussion one by one. The pharmacist did not present these issues by PowerPoint, as was the case in Rubain, the meeting was less formal with the issues written/highlighted on various slips of paper and post-it notes.

The topics of the meetings observed were cost saving initiatives from the CHP, advice from secondary care and the publication of a new SIGN (97) guideline. The first meeting the researcher observed was a meeting about cost saving initiatives which resulted in the GPs expressing their frustration in the cost saving switches (this has been presented in 6.7.3 Community health partnerships), although agreeing for these switches to take place, albeit grudgingly. The subsequent meetings observed resulted in little discussion and debate. To encourage more discussion the pharmacist prepared a summary of the SIGN 97 guideline and sent it round the GPs for comment and suggestions. This excerpt from fieldnotes continues this narrative;

*Dr Y was the only GP to email back. He wanted dietary advice for people who want a statin but don't have enough risk factors to warrant a prescription. The practice pharmacist had prepared this information and patient education leaflets and aids to help patients understand their risk factors and help them manage their condition. However, the GPs felt this was not necessary and they could collect a leaflet from the practice nurse if they felt a patient needed one. The practice pharmacist tried to generate discussion around the new guideline but the GPs were happy with the SIGN recommendations and did not have any comments for debate. The practice staff did debate how they were going to measure patients' cholesterol rather than what they would prescribe.*

In comparison to Rubain these practice meetings had little discussion and debate. In Rubain they would discuss whether the prescribing was appropriate, would discuss various scenarios and then discuss how they were going to modify their prescribing formulary. In the Haun they would agreed to modify their prescribing behaviour by the recommendations but not discuss their individual prescribing preferences.

#### *6.8.1.3 Clinical role*

The practice pharmacist enjoyed the clinical side of her role and was keen to increase her involvement in this type of work. The GPs were observed regularly asking for advice on individual patients, such as to check dosages or for contradictions or from outpatient recommendations and conducting face-to-face medication reviews with patients.

#### *6.8.1.4 Cost-efficiency role*

Each CHP had a prescribing budget and part of the practice pharmacist's role was cost minimisation with their practice. This practice performed well against the health board cost prescribing indicators so this practice pharmacist did not spend as much of her time looking at the practice's prescribing from a cost perspective as she felt her time was better spent on the clinical aspects of her role.

*“The practice pharmacist does not use the prescribing indicator report as it evaluates prescribing data but it is very cost driven, she tells me she does not use it as much as other practices where cost is an issue. She goes on to tell me that she does not chase money month after month, if there is a huge blip she would consider investigating further but she would rather be doing something clinical.”*

The practice pharmacist felt they had to be perceived as part of the practice team to be able to influence the GP's prescribing. *"Our strength lies in being part of the team and not the CHP. If we harp on too much about the CHP initiatives we could be perceived as an outsider. We have worked hard at the culture to be members of the primary care team, but yes we are employed by the CHP. Part of our role with the CHP is cost-effectiveness as well as clinical work and this has to be done to justify our salaries."*

This practice pharmacist had more of an operational role than a strategic role. She had limited success at influencing practice prescribing policy but was valued by the GPs in her advice giving role.

#### *6.8.2 Practice nurses*

The practice nurses ran some of the practices chronic disease management clinics. Part of this role was altering doses.

The practice had a specialist asthma/COPD nurse who would come into the practice one morning a week and consult with these patients. She could make dose changes but would make requests to the GPs for drug changes, which the GPs tended to follow.

#### *6.8.4 Community nurses*

The GPs met with the community nurses one morning a week, where the nurses would update the GPs on patients in the community. They would frequently ask the GPs to visit a patient or to prescribe a medication and would engage in discussions about treatment options.

The practice had good working relationships, with the GPs trusting their colleagues and taking their advice on board.

## 6.9 Prescriber

Each GP has personal influences which affect each prescribing decision. As this practice did not have a clear prescribing policy the GPs referred to experience as the biggest influence on their prescribing. The GPs did not give equal weight to each influence; the hierarchy of influences they spoke of is listed below:

### 6.9.1 Experience

The GP's experience was the strongest influence over their prescribing. As they worked with limited time and resources they prescribed drugs they knew well and were comfortable prescribing. Initiating medication they did not know well required additional reading and consultations. As one GP commented *"what you prescribe depends on where you are in your career. When I first started I was more familiar with hospital medication but as time goes on you get more confident and you learn yourself and you try different medications."* As GPs initiate more patients on medications and look after patients on medication which was initiated in secondary care they become more knowledgeable and comfortable prescribing the medication themselves.

This excerpt from fieldnotes illustrates how prescribing by experience rather than a formulary can result in different prescribing between the GPs. *"I know I prescribe things that the young Doctors would not agree with. It is based on experience, but when they get older and young people come in they will be the same, it all goes in cycles."*

### 6.9.2 Medical training

Medical training was referred to as the core of the GPs' knowledge but influenced their behaviour less as they became more experienced practitioners.

### *6.9.3 Personal beliefs, attitudes, views and preferences*

As this practice did not have specific prescribing formulary the GPs were free to select their own preferences of medication which were established through their experience. The GPs were constrained by the Tayside health board prescribing formulary but this was still comprehensive and allowed freedom of choice. They habitually prescribed medication which they knew well. The GPs did not spend time discussing individual prescribing decisions as had been the case in practice one.

The ethos of this practice was laid back, informal, friendly without rigid management and no clinical lead. All the GPs were interested in the clinical side of their work and were less driven by external influences and initiatives from the CHP. They did not monitor their prescribing by the CHP prescribing indicator report as they felt it did not account for their skewed practice population. All the GPs were aware the NHS had limited resources and generally prescribed the cheaper, generic alternative. The GPs and the practice pharmacist did report a change in some of the practice organisation since the introduction of the nGMS contract. They have tightened up on procedures and become more organised with the clinical areas of QOF, which are now divided up under a clinical lead which has given more consistency in the overall care among therapeutic groups.

In Rubain and Rosnish they regularly had meetings where they discussed their prescribing and were proactive in regularly reviewing their practice. This practice was more reactive and change was brought about from a change in policy by the CHP or a new guideline.

### *6.9.4 Knowledge of the patient*

As this was a large urban practice, with a large student population the GPs did not have the same knowledge and continuity of care as was present in Rubain. The GPs did know their

more elderly patients and/or complex patients but lacked the depth of knowledge which was gained in Rosnish. Patients with more complex conditions did try to consult with the same clinicians however, this was not always possible as the majority of appointments at the practice were on the day and patients were offered the next available appointment which might not have been with the clinician of their choice. This was a source of frustration for the GPs:

*“It really annoys me here, we have patients who have been in to see one Doctor and they need to come back for another consultation and it is not their fault they are offered the next available consultation and they can end up seeing a few different GPs, you go back through the story, you get a different version, you have to interpret the other GPs’ thoughts.”*

When the GPs know their patients and are used to caring for them they are able to make clinical decisions much quicker.

*“....this helps you in your decision-making; you can make that intuitive leap quicker. You know more about them and what they are saying, how they present themselves....”*

The influence of the doctor patient relationship is discussed in more detail overleaf. This section has discussed the influences upon the prescriber. The next section discusses the consultation between the doctor and patient, where the prescribing decisions are made.

## 6.10 Interaction/Consultation

This section will discuss the influences in a consultation, in particular continuity of care.

### 6.10.1 Continuity of care

With the majority of GPs working part-time and their appointment system this practice struggled to maintain information and relationship continuity of care with their patients.

Information and relationship continuity was present in the GPs who worked full-time and/or had practised at the surgery for a number of years. As this practice had a large student population they were looking after fewer patients with long-term conditions (the fewer blue circles in the model depict the practices level of continuity of care compared to the other practices).

The structure of an interaction was described in practice one, Rubain. The influences present in a consultation and their processes specific to this practice are described in turn:

#### *6.10.1.1 Patient's notes*

The GPs all looked at a patient's notes before they entered the consulting room. This allowed the GP to familiarise themselves with their last consultation with the patient and to see if the patient had consulted with another clinician since their last interaction. The extent to which they looked at the notes depended on the frequency of visits by the patient to the practice. On occasion the GP knew why the patient was attending without looking at their notes. The patient's notes seemed to be an effective method of jogging the GP's memories although on occasion it was not until the patient entered the consulting room that the GP seemed to recognise the patient.

#### *6.10.1.2 Doctor-patient relationship*

Through consultations the doctor and the patient build a relationship. By building this relationship the GP gets to know the patient, their preferences and values, and about their context and circumstances.

To have a good doctor-patient relationship, good communication is required. Communicating with patients can be a difficult job; this depends on the information being disclosed and the

emotional state of the patient. In early diagnosis the GP can be communicating difficult information, educating the patient about their condition, prognosis and then trying to engage the patient in shared decision-making about their treatment. Also in early diagnosis, the GPs at this practice did not know their patients tacitly and were working hard to build a relationship. The treatment options were often not clear and discussed as part of 'trial and error', so they would have to make patients aware of the side effects and impart complex information for a decision which was likely to be reviewed. The organisation of the practice's appointment system meant patients had to wait to see their chosen GP and had to wait to have their questions answered. The GPs would use their own discretion and book on-the-day appointments with certain patients to avoid distress.

The practice population was deprived and with a large student population. In consultations the GPs often had to work hard to get the student population to open up and the GPs frequently suspected an alternative agenda to the presenting problem. The GPs also suspected an alternative agenda with the drug addicts; it was only in consultations with drug addicts that the researcher observed the GPs saying 'no' to patients. Many of these patients were not consulting for advice, reassurance, education or a prescription but for a letter, a form to be signed or to have the consultation recorded in their notes. Experience and knowledge of the patient was invaluable to the GPs in interpreting the situation and establish what was going on in these patients' lives. However, in some patients they could only deal with the presenting problem.

#### *6.10.1.4 Patient education*

Patients need to be informed about their condition, symptoms, risk factors, medication and any side effects. Good communication ensured the information is imparted at a level the patient understands and the patient is comfortable in asking questions. This allowed the clinician to engage in shared decision-making with the patient about appropriate medications. Patient



education ensured the patient understood their condition and was more likely to be compliant with their medication regime. Patients are less likely to require repeat appointments if they can self manage. However, providing education in one consultation is difficult:

*Dr X commented that in a 10 minute consultation it is very difficult to give enough information to allow shared decision-making. She emphasised there is barely enough time to alleviate their fears.*

This practice had recently had a partner retire. This partner had some dated prescribing practices which the patients had come to expect. The GPs struggled with some of these patients to convince them to change their medication. To maintain a good doctor-patient relationship the GP would engage in education but would prescribe the patient's chosen medication. The GPs struggled to maintain this education as the patients would see more than one clinician.

#### *6.10.1.5 Shared decision-making*

Prescribing decisions should in theory be a joint decision between the doctor and patient; however this was not always the case. The premise of shared decision-making is that if patients are engaged in decisions about their treatment then they are likely to be more compliant. Nevertheless, GPs are constrained by budgets and formularies so the treatment options are limited. In young patients with acute problems there was frequently a generic preparation which should be tried first, which gave the GP little option to offer the patient. In older patients, the clinical information is more complex. Patients have multiple morbidities and, thus, these decisions involve polypharmacy, so involving the patient can be difficult. The practice worked within the constraints of the Tayside prescribing formulary and was aware the NHS had limited

resources so would prescribe a generic preparation first line. So invariably the options were limited and all the GP could offer was tablets instead of capsules.

Some patients had strong views for or against medication. Few patients were observed being against taking medication but many drug addicts were observed demanding medication. It was only in consultations with drug addicts the GPs were observed saying 'no' and being forceful against patient demands.

*This patient was an alcoholic and came in asking for more diazepam and dihydrocodeine. Dr X said no, and went on to say she gave him enough diazepam on Friday and this was only Wednesday and he has none left, so if he cannot take them properly she is not going to give them to him. He then started going on about his chest and his cough and Dr X told him that his lungs were clear but he was still going on about needing antibiotics and telling her which antibiotics he wanted, Dr X said that she would only give him amoxicillin..he threw a tantrum and stormed out.*

This practice relied on the patient's notes to provide continuity of care. In some older patients, with chronic conditions the GPs would use their discretion and book on-the-day appointments in advance for some patient they felt they should see again in the near future.

## 6.11 Conclusion

This chapter has provided an overview of the Haun, the urban practice in this study. This chapter is structured around the practice prescribing model. The chapter has discussed how reactive the Haun was to the nGMS contract, struggling to meet the contractual requirements of offering patients an appointment within 48 hours at the expense of relationship and

informational continuity of care. The practice had a laid back, egalitarian structure, valuing clinical autonomy over tight organisation and consistency between prescribers.

## THE COMPARATIVE CHAPTER

The previous chapters described each of the three practices; their setting, structure, organisation, communication and systems. Through the analysis it emerged that practices make two different kinds of prescribing decision, macro and micro. This chapter interpretatively compares the three practices by these two different types of prescribing decision.

Macro prescribing decisions are defined here as policy decisions made by considering the evidence in light of the average patient, whereas micro prescribing decisions were made in the consultation with the patient, considering a unique individual, in light of the evidence and their personal context, preferences and values.

Initially this chapter describes macro prescribing decisions, then the influences which come to bear on these decisions are compared across the three practices by their values, organisation and communication strategies. The second section of this chapter describes micro prescribing decision-making and the influences which come to bear on these decisions, highlighting the differences between the three practices.

### 7.1 Macro Prescribing

There are a number of influences on macro prescribing which are considered and compared across the three practices in the next section. How practices responded to these influences and formulated a macro prescribing policy, and organised and communicated as a practice was affected by their practice values and practice identity. This section will now expand on these points.

### *7.1.1 Context*

General practices work in the context of the NHS with many prescribing quality improvement influences and policies introduced to practices through the Community health partnerships.

Community health partnerships are units of a health board designed to make service delivery more local, to suit the needs of the population they serve. These are partnerships between primary, secondary care and social work services aimed at collaborative working. The CHPs are accountable, through clinical governance, to continuously improve the quality of their services. Within each CHP there is a primary care pharmacy division which has a responsibility to ensure patients have access to the most clinically and cost effective medicines, they operate within a limited drugs budget so try to encourage rational and cost effective prescribing.

The CHPs try to influence practice prescribing behaviour by producing a comparative prescribing report which feeds back their prescribing data, by employing practice pharmacists and by financially incentivising changes in prescribing. The health board also tries to influence prescribing by producing a health board prescribing formulary. These contextual influences are described in turn;

#### *7.1.1.1 Health board prescribing formulary*

The health board produces a prescribing formulary, which is a list of health board recommended drugs. This list is compiled on the basis of rational, safe and cost effective prescribing. All three practices accepted the rationale and attempted to prescribe generically from this list where appropriate.

#### *7.1.1.2 Practice prescribing formulary*

The Tayside area formulary is a guide of recommended drugs. The formulary is intended to guide choice and awareness of a rational selection of drugs which has been selected on the basis of clinical efficacy, safety, patient acceptability and cost-effectiveness. Rubain and Rosnish modified the health board prescribing formulary by creating a practice formulary.

*“We have a practice formulary which has been sort of developed from the regional guidelines but with some practice tweaks of what drugs we choose to use” (GP 2 interview, Rubain).*

Practice formularies are a means by which the practices could rationalise their prescribing decision-making but still retain a degree of autonomy. The local health board had a prescribing formulary as a guide and Rubain and Rosnish amended it to suit their preferences, values, experience and population. The Haun opted not to have a practice formulary and work from the local health board one. By working within a practice formulary Rubain and Rosnish retained more clinical autonomy but were also able to maintain consistent behaviour across their prescribers. Amendments to the formulary were discussed at prescribing meetings in Rubain and informally in Rosnish. The Haun did not place the same value on consistency; they tended not to discuss what they prescribed and placed trust in individual professional opinion. As a practice they seemed to feel prescribers were capable of rationalising their own prescribing decision-making.

*“I have to say I think that prescribing policy is something that perhaps we could be tighter on in this practice, we don’t really have a formal, this is the drug that we use for this situation in this practice, we tend to prescribe what we want to prescribe ourselves as individuals” (GP 1 interview, the Haun).*

Clinical governance and CHP policy seek consistency and standardisation. Through Rubain and Rosnish adopting practice prescribing formularies they had a mechanism in place to limit variation in their prescribing practice. By modifying the local health board formulary they retained an element of clinical autonomy but also achieved more consistency.

#### *7.1.1.3 Prescribing indicator report*

The CHPs produce a report compiled of a number of quality and cost-efficiency prescribing indicators. These indicators are applied to PRISMs data and the practices in the CHP are ranked by their performance against these measures. The intention is to motivate practices by peer comparison where it is assumed they will not want to be seen as ‘bad’ next to their peers.

Rubain accepted these performance indicators and seemed to respond to the sense of competition. At the practice prescribing meetings they would collectively review their performance and the areas where they were underperforming were discussed and debated and often identified as areas for a clinical audit.

*“...We have meetings with (practice pharmacist) once every four weeks, the last Friday of the month. First of all, we look at, because of our prescribing, a monthly update in terms of how our prescribing compares with the CHP average and so on and he (practice pharmacist named) recommends changes to our prescribing patterns...”* (GP 1 interview, Rubain).

Rosnish did not find the prescribing indicator report of value due to the limitations of PRISMs prescribing data (this data measures cost and volume and is not linked to case mix). This practice had an elderly population and a growing list size. The practice felt the data did not account for differences in population and as the data was not very timely it did not reflect their

true practice numbers. The quote below illustrates the GPs views towards the limitations of these data;

*“I’ve got a high percentage of an elderly population and that skews the number of items per patients and it has an influence on the cost.”* (GP 2 interview, Rubain).

The Haun did not value the CHP prescribing indicator report, as it did not consider the practice population and only measured cost and volume. This practice had a skewed younger population.

*“...very much weighted towards a student population. So relatively young, fit and healthy and the proportion of older patients are a lot less.”* (Practice pharmacist interview, the Haun).

Generally, the Haun did not place the same value on these management control initiatives, valuing professional autonomy and being able to use professional values and knowledge to make the decision of what is appropriate therapy for their patient. There was a feeling that the bureaucratic control being implemented was pushing too much responsibility onto the GPs and ultimately patients are responsible for their own health and GPs are merely there to advise.

*“I view myself as a professional and I think if patients come to me for advice I will give them the best advice I can. But I am not here to hold their hands and to force them. You know they can consult me and what a consult means, you are asking for advice.”* (GP 2 interview, the Haun)

The nGMS contract and the CHP prescribing reports attempt to use performance measurement as a form of management control or at least influence over general practices. All practices embraced the nGMS contract as this is the mechanism by which they are paid, however,



through discussing the nGMS contract Rosnish's values towards such initiatives became clear. Rosnish, valued organisational control from a practice perspective not from a national perspective, and did not value control of clinical decision-making.

*"... I don't mind the fact that there is a monitoring financially I don't mind that. What I do mind is that they monitor you for clinical aspects. This is my biggest gripe against all the other GPs in the NHS that they signed up to this new contract....They could have done this without having, and okay now they're getting paid extra for chronic disease but they could have take the lead for it....Whether that's the BMA or whether that's the College but they've faulted and just by default accepted a contract which now is the thin edge of a wedge which is giving everything away to the government who is just slowly but surely going to erode any satisfaction, clinical satisfaction of looking after patients."* (GP1 interview, Rosnish)

Although this study is looking at quality, the CHP was perceived as primarily interested in constraining costs. The prescribing indicator reports measured practice prescribing by both quality and cost-efficiency indicators. Rubain was ranked as high quality and low cost; Rosnish was the highest performing practice in the health board for quality but was also a costly prescribing practice. The Haun was ranked low quality and low cost. Each practice attributed the financial costs of their prescribing to their population rather than their prescribing preferences and behaviour.

Rubain appreciated that the NHS has finite resources and they must tailor their prescribing in line with this.

*"Well, it's both. You've got to be aware of cost because at the end of the day, obviously funds are limited"* (GP1 interview, Rubain).

Rosnish had preferences for certain medication which was more expensive than the generic preparation. Also this was an innovative and progressive practice, which meant they had higher prescribing costs but considered this was how prescribing practices would be in the future. For example, most of the practice's patients over 65 were on a statin before the SIGN guideline and nGMS contract promoted this prescribing behaviour, which meant they had much higher costs than the other practices in the CHP.

The CHP had run financial incentives for cutting the cost of prescribing in the past. The Haun had responded to these incentives and changed patients' medication for what they felt were minimal cost savings. They felt that this increased their workload and caused distress to some patients. With the additional consultations and administrative tasks required to change patients' medication they were not sure if there were any true savings.

*"...the older I get, the more times I see that prescribing is mucked around, to try and save a few pounds here and there and the more I see patients, who get upset by having their drugs changed for no good reason, I tend to not even worry about the costs anymore."* (GP 2 interview, the Haun)

Responding to the CHP cost mechanisms was a much smaller cultural shift for Rubain than the other two practices. This practice had been a fundholding practice so was more responsive to financial rewards than the other practices and as a result also had experience of organisational reform. As a practice they had re-organised to suit the contractual changes of fundholding and then again when fundholding was abolished. As a fundholding practice they had controlled their own budget (major part of which was prescribing) and to contract out services, and in turn they retained what they saved to spend as they wished on patient services.

Practices were monitored through fundholding, which is perhaps why this practice responded positively to current CHP monitoring. Hence, this practice was accustomed to scrutinising its prescribing; looking at cost, efficiency, generic prescribing and financial incentives. They were more used to organising themselves to make group decisions.

#### *7.1.1.4 Practice pharmacists*

The main role of practice pharmacists was to influence the practice's prescribing policy by implementing CHP prescribing policy (both quality and cost); implement new guidelines; conduct clinical audits; and giving prescribing advice. This remit was very wide, so the role and responsibilities of each pharmacist varied widely and became what they were comfortable doing and what the GPs were happy for them to do.

*“.....because our roles have generally evolved rather than being dictated. They tend to evolve within the practice depending on what the practice priorities are and I suppose the interests of the practice pharmacist and the GPs as well.”* (Practice pharmacist interview, the Haun)

In Rubain the practice pharmacist took more of a strategic role spending most of his time influencing the practice's prescribing policy. He helped them keep on top of the latest evidence, constrain the cost of their prescribing and conducted medication reviews. In Rosnish the pharmacist took more of an operational role where she carried out the practice's INR clinic, provided advice and problem solving and conducted the occasional medication review. In the Haun, the practice pharmacist carried out both an operational and strategic role. She was involved in influencing the practice's prescribing policy but not to the same extent as the pharmacist in Rubain, as she undertook more of an operational role, carrying out audits, medication reviews, processing and checking secondary care recommendations and providing advice and problem solving support for individual patients.

In each of the practices, the pharmacist's role suited the needs of the clinical staff at the practice. The Haun had a young and more deprived practice population, with some of their patients illicit drug users who required advice about complex interactions and help with dosing and contraindications for babies and young children. The lead GP at Rosnish liked to keep on top of EBM and problem solve himself, limiting the opportunity for the practice pharmacist to set policy. The culture of Rubain was competitive, where they liked to be 'one of the best' so their prescribing policy was of importance to them providing opportunity for the practice pharmacist to lead prescribing policy and develop a strategic role.

#### *7.1.14.1 Strategic role*

The practice pharmacist's strategic role, influencing prescribing policy, was essentially a prescribing leadership role in the two larger practices. The Haun and Rubain relied on their practice pharmacist to inform them of the latest evidence, usually guidelines. Most practitioners felt they did not have sufficient time to keep up-to-date and to reflect on new evidence. The practice pharmacists would also inform practices of the latest CHP and health board policy (usually cost-efficiencies) and try and persuade them to engage, change their prescribing and incorporate the changes into their macro prescribing. New information and changes in prescribing policy might then result in an audit (operational role) to identify patients for review and the results of these were feedback at prescribing meetings. The prescribing data was complex and required interpretation in light of the practice population and the context of changing evidence. The practice pharmacists had a key role in translating this data into information to help inform macro prescribing decision-making. In Rubain, the CHP prescribing report was also an important tool used by the pharmacist to influence their prescribing policy. The practice pharmacists would filter this information to the practice by way of a practice meeting, to try to engage practitioners in discussion and debate around reviewing their macro prescribing and refining their associated systems.

In Rubain the practice pharmacist broke this information down and presented it by PowerPoint presentation. Presenting more detail ensured all practitioners were aware of the evidence and justification of the guideline and allowed the practice pharmacist to present practice specific prescribing information from interpretation of their prescribing data. Breaking down the information generated discussion around some of the CHP cost saving initiatives, as a practice they generally accepted the evidence, information and pharmacist's advice but they would challenge some of the CHP cost-efficiency policies. Rubain valued being informed of the new evidence and formulating a practice policy in line with their practice culture and values, as the quote below illustrates;

*"First of all, we look at, because of our prescribing, a monthly update in terms of our prescribing compared with the CHP average and so on and he recommends changes to our prescribing patterns. Obviously usually with evidence based in terms of recommendations from NICE or SIGN guidelines or whatever, and we discuss it and almost invariably we agree with what he says"* (GP1 interview, Rubain).

Although the GPs in the Haun valued the practice pharmacist filtering new evidence into the practice their prescribing meetings were poorly and not punctually attended (they were also not regularly scheduled). The Haun accepted these meetings were difficult to arrange rather than trying to find ways to maximise opportunities. At these meetings the practice pharmacist shared the evidence from guidelines, interpretation of prescribing data, recommendations of changes to prescribing policy from the CHP but did not present the CHP prescribing indicator report or the results of audits. The quote below from a GP who does not regularly attend the meeting conveys her perspective;

*“...prescribing policies, other than (practice pharmacist named) who mainly does all that kind of thing, as far as looks at all the SPA data and all the rest of it and looks at areas where we might think to improve things”* (GP 3 interview, the Haun).

The meeting was held in an informal manner to suit the practice culture; the pharmacist would have the agenda on various pieces of paper (many scrap) and the GPs and nurses would accept her suggestions but did not engage in the same level of debate as in Rubain. The information was not broken down or given as much interpretation as by the practice pharmacists in Rubain. On occasion the pharmacist circulated information in advance to try and aid more in-depth discussion but this had little impact. This practice respected clinical autonomy and did not value consistency in their prescribing.

In summary, the practice pharmacists played a strategic role leading prescribing quality improvement by filtering evidence and CHP prescribing quality improvement mechanisms into the larger practices. The practice pharmacists also had a key role in interpreting the practice system data in the context of the changing evidence. The practice pharmacist's strategic role of influencing prescribing policy was facilitated by a practice that values consistency in prescribing behaviour thus values a practice prescribing formulary and policy and values collective decision-making. For a practice pharmacists to have an effect at the macro prescribing level the practice had to value consistency in their prescribing, value macro prescribing and have an effective communication channel (this final point is compared in more detail in section 7.1.3).

#### *7.1.1.4.2 Operational role*

At the operational level the practice pharmacist's roles were similar but the time they spent on these tasks varied. All three pharmacists carried out clinical audits and provided advice on

individual patients. In the Haun the pharmacist processed secondary care discharge letters. This section will now compare the pharmacist's role in clinical audits and the process for checking secondary care recommendations. Advice on individual patients was too unique to compare but is discussed in the micro prescribing section (7.2).

The main task carried out by all three practice pharmacists at the operational level was clinical audits. All the practices valued the pharmacist's activities in audit and feedback however, the amount of time they spent on this varied. The practice pharmacist in the Haun spent a considerable amount of her time on clinical audits, whereas the practice pharmacist in Rosnish did not have the same amount of time in the practice and as the lead GP liked to be involved in the audits himself to retain control she only conducted more complex audits. Audit is the mechanism by which by practices can find out what is going on and identify clinical areas and patients for review of their medication. Accurate and effective auditing requires consistency in recording. Rubain used the IT system with 'hooks' (discussed in section 7.1.2.3) and as Rosnish only had two prescribers with their own areas of responsibility the data recording was consistent. Since the nGMS contract the Haun employed a retired nurse as an administrative assistant to consistently code their data;

*"All the major diagnosis ....we highlight and send it to (administrator) who is, does our summaries. Sshe is a semi-retired nurse, so she has a list of codes which are standard, so we don't actually, for major diagnosis we don't actually add the data codes on ourselves"* (GP 1 interview, the Haun).

The prompts for audits were generally changes to guidelines or recommendations, changes to CHP prescribing policy or changes to macro prescribing policy. The CHP inform practices through their pharmacist when drugs are off patent or when licensing has changed. Many of

the CHP recommendations were intended to influence new prescribing rather than to change existing prescribing, but in reality, particularly with cost-efficiency pressures this involved changing existing prescribing which was reviewed through audits by the practice pharmacists. The CHP quality improvement mechanisms were based on PRISMS data, so to link these measures to diagnosis and find out if the prescribing was appropriate required practice system data.

Practice pharmacists monitored prescribing by conducting audits, through matching PRISMS data to the practice system data. All three practices regularly engaged in audit and feedback. However, the Haun did not use tight audit definitions due to the historical inconsistencies in their data recording. Running these audits on Vision (the IT system) took skills in Boolean searching, so the more variables the more complex and time consuming the search. Therefore, audits of prescribing were harder to conduct in the Haun as they tended to prescribe what they wanted as individuals, so would take more time and resources; especially the more tightly the audit was defined. Without tight audit definitions and mechanisms for consistent recording a number of patients could be missed. Whereas in Rubain and Rosnish where they had consistency in their prescribing and valued knowing what was going on, tight audits provided the mechanism by which they could oversee their prescribing behaviour and identify patients for review.

The practice pharmacist in Rubain informed GPs of CHP recommendations at the practice meetings, where they were discussed and then their prescribing policy and formulary were updated. These changes would prompt an audit and the results of these were fed back at these meetings. In Rosnish the practice pharmacist had informal discussions with the GP and if these recommendations were in line with his values the pharmacists would audit and then implement the changes. In the Haun the practice pharmacist would check how many of their patients this



affected. If this was a small number she would change the patient's medication on the computer and not inform the GPs of the recommended changes. For larger numbers of patients she would audit and feedback the results to one GP face-to-face and together they would discuss the issues and send a summary round the other GPs for comment. The GPs would inform the practice pharmacist which patient's medication she could change, not change or call in for a medication review. This would result in changes at the micro, individual patient level, but did not result in any changes at the macro level.

*"...I'll communicate that back individually to (GP) although I may then cascade that out to the rest of the group. Or it may be that when I do audits like this it'll flag up that there's one particular GP who's initiating that combination more although it's usually secondary care initiated. But if by doing audits like this I find that there's one GP who's practice is different from their peers then I'll zoom in on that GP and just have an individual discussion with them."* (Practice pharmacist interview, the Haun).

Due to the lack of face-to-face communication and the difficulties with organising practice meetings new prescribing and audit issues were often not collectively discussed in the Haun, therefore the GPs could be ill informed when making their prescribing decisions. This point is discussed in more detail in the communication section 7.1.3.

All the GPs referred to secondary care as a big influence on their prescribing. However, the pharmacists in Rubain and the Haun provided advice to GPs on secondary care recommendations. The GPs have come to understand with many drugs it is a class effect rather than a specific drug;

*“....we had one of the research professors speaking .... one of his slides referred to the prescribing police and made some really derogatory comments about practice pharmacists who he sees as being totally stifling to the use of new drugs or drugs that have appeared in trials that some of the hospital consultants are handing out because that’s what was used in the trial, that’s where the evidence is so, therefore, we’ll give them, say, Perindopril and Indapamide, to prevent a stroke or after a stroke, whereas the pharmacist would say Indapamide is actually quite expensive and it’s really a class effect isn’t it, so you don’t have to use the exact drugs, you can use ... ” (GP2 interview, Rubain).*

Many patients are discharged from hospital on medication which is expensive to prescribe in the community. In the Haun, outpatient and discharge letters went directly to the practice pharmacist, whereas in Rubain they went to the appropriate GP. Rubain had the practice formulary on the IT system via ‘hooks’ which ensured that the GPs were aware if the medication was outside practice policy (discussed in detail in the IT section 7.1.2.3). If the GPs were unsure they would refer the request on to the pharmacist. As this extract from field notes illustrates:

*“Ninewells do influence but (practice pharmacist named) helps us fine tune their recommendations” (GP 3 fieldnotes, Rubain).*

In the Haun the pharmacist spent a considerable amount of her time processing requests from secondary care, ensuring they were appropriate and cost-effective and frequently selecting the appropriate generic preparation.

*“I think the big part of the routine stuff is hospital communications. That would be like patient discharges or outpatient communications so there are changes to the patient’s therapy. They*

*may or may not flag up changes to a patient's therapy and for instance outpatient communication often says please supply this patient with this medicine."* (Practice pharmacist interview, the Haun).

By Rubain having their macro prescribing policy and formulary on the IT system via hooks, GPs were able to process these requests themselves and only contact the pharmacist when they were unsure. This saved the pharmacist time which could be spent on other tasks, such as their strategic role.

#### *7.1.1.4.3 Part of the practice team*

Each of the practice pharmacists felt that being perceived as part of the practice team was invaluable to their ability to influence policy. Rubain's pharmacist had been with that practice the longest period of time and Rosnish's pharmacist had been with the rural practice for the shortest period of time and was in the practice for the least amount of time per week. Only being in a practice for four hours a week when the majority of that time the GPs were in surgery does limit the opportunity to build a rapport and establish trust. Rosnish's pharmacist did not feel part of the practice team whereas the pharmacists in Rubain and the Haun felt they had worked hard to establish this position which allowed them to take on more of a strategic role and have an impact on prescribing policy.

*"...I definitely feel when you're sitting in the surgery you're perceived as a member of the team rather than as an external health board person."* (Practice Pharmacist interview, the Haun).

Their role remit is wide and the practice pharmacists tended to focus on the aspects of the job they enjoyed, for the two female practice pharmacists at Rosnish and the Haun, this was the face-to-face interaction with patients. They were influenced by the altruistic reasoning of

helping people understand their medicines, enjoying the patient contact and helping them rather than being motivated by the budgets and finance side of their role. Whereas the pharmacist in Rubain was motivated by influencing practice policy and having a real and quantifiable impact on their collective prescribing behaviour. Rubain valued consistency and collective prescribing behaviour. As a practice they were used to scrutinising their prescribing from when they were a fundholding practice. It was much harder for the pharmacists in Rosnish and the Haun to impact on macro prescribing so they naturally enjoyed the micro prescribing aspects of their job.

#### *7.1.1.5 In summary*

Practice engagement with quality improvement, EBM and clinical governance was made at the macro prescribing level; albeit in different formats. Rubain and the Haun engaged through practice prescribing meetings and Rubain and Rosnish by formulating a practice prescribing policy and formulary.

This study found formulating a practice prescribing policy and formulary was a way of engaging with EBM and CHP mechanisms and rationalising and standardising practice prescribing but retaining an element of autonomy. The CHP indicator report was only valued by one practice as it was seen as cost orientated and did not take account of skewed practice populations. In both Rosnish and the Haun there was scepticism towards the CHP, feeling that recommendations were marketed to improve quality of care but often felt it was merely cost savings. It is unclear the extent to which this is rhetoric as both these practices did not value monitoring or management control.

This study found practice pharmacists were effective in leading prescribing quality improvement in the larger practices by filtering EBM and CHP policy and mechanisms into the

practices. The practice pharmacists had a key role in interpreting practice system level data and translating it into information in the context of this changing evidence. All the practices valued the pharmacist's activities in audit and feedback. The feedback of audits resulted in changes at the micro, individual patient level, but changes at the macro level required audit data to be feedback to the majority prescribers face-to-face to facilitate discussion and collective decision-making. For the practice pharmacists to have an effect at the macro prescribing level practices had to value consistency in prescribing. Also practices had to be organised, with effective processes and systems, and communication channels in place for the pharmacist to influence macro prescribing (discussed in the sections below).

### *7.1.2 Organisation*

All the practices placed being organised and efficient high on their list of values; however the practices definitions and how they achieved these varied. This section will compare the three practices by their values towards organisation, their leadership styles and their IT and chronic disease management systems.

Rubain and Rosnish were systematic and organised. The Haun was also coming to increasingly value being organised and was undergoing a culture shift towards tighter processes and systems during the period of observation. Rubain and Ronish had valued tight systems, protocols and organisation prior to the nGMS contract whereas the Haun was coming to value these features as the nGMS contract had forced them to start to organise in this way and they were starting to appreciate the benefits;

*“I think from the point of view of making the practice more organised and tightening up on the systems that are in place for the disease registers and things, I think it has been good for that*

*and I think it focuses your mind and it means people don't slip through the net"* (GP 1 interview, the Haun).

Rubain and Rosnish were proactive, holding meetings to anticipate change and to plan, devising procedures and ensuring resources were in place. For example, Rosnish planned extensively for the transfer of IT system, learning from other practices but also brainstorming to meet their needs and circumstances and minimise impact to their daily work. The Haun was a reactive practice; they did not invest the same amount of resources to planning and organising clinical systems and processes. The quote below illustrates this point;

*"I think it is, you do things the way you do them because it's the way you do them and you are used to doing them that way, and I think sometimes it is hard to take a step back and look and see what you could be doing differently, because you just assume that you are doing things and it is working well, and it is not until there's a problem that you think well we should really have had a system to try and stop that problem happening, if only we'd been doing this and this, this would never had happened. But until, I think you just plod along, you are busy doing other things, you don't have a lot of time to sit and think about it"* (GP 1 interview, the Haun).

Rubain and Rosnish valued structure, simplicity, efficiency and organisation. They liked to have everything organised, documented, and systems and processes in place and worked to refine these, as this quote from the lead Rosnish GP illustrates;

*"I mean I apply all these criteria and all these things before the contract came out because I think chronic disease management, I think, is a huge thing and it's a caring aspect and the more you can organise these things the less work you've got. My intention is just to try and help people but I also have a job to do and I want to do as little as possible so my way of doing that*

*was to try and organise and educate my patients as good as possible so I have to see them as little as possible.”* (GP 1 interview, Rosnish).

The Haun was more chaotic with fewer resources invested in being organised (this also made it a difficult practice to observe). This practice was keen to change, which is why they had agreed to take part in this research. Rubain and Rosnish had invested time developing systems and thus were able to be proactive rather than reactive. We return to this point later in this section.

#### *7.1.2.1 Leadership*

The two practices which performed well against the prescribing measures used in the sampling for this study both had leadership, albeit different styles. Rubain had clinical and administrative leadership and Rosnish had a form of leadership from the primary GP who did not employ a practice manager and took on this role himself. The Haun was an egalitarian practice, with no clinical leadership and the practice manager heavily involved with managing reception taking her away from managing the GPs and other organisational aspects of the business.

Leadership was important for practice organisation and managing change. Practices had intrinsic values and culture but were constantly being forced to manage change with reviews of policy and practice from CHP, HB and Government and through modifying behaviour and practice to be in line with the latest evidence-based medicine. Leadership involved ensuring these issues were addressed and dealt with. (Specific prescribing leadership is discussed in section 7.1.1.4). Rubain and Rosnish had a GP who would oversee the clinical and organisational aspects, albeit with different styles. These clinical leaders ensured issues were addressed, would drive change and be involved in co-ordinating the practice organisation.

Rubain and the Haun also had practice managers who were important in leading the organisational aspects, however, again with different roles and responsibilities. These different in leadership roles are discussed below.

Rubain did not have a senior partner with all the GPs having equal status. However, the behaviour of the longest serving GP demonstrated leadership style. He regularly engaged with staff asking them about their daily work and offering advice and support, as a means of 'keeping an eye' on the practice organisation and administration. This GP would meet regularly with the practice managers formally but also informally, on a day-to-day basis providing advice, support and background clinical information. This interest provided drive and motivation and thus improved the practice performance and organisation. He was the only clinician who attended all the practice meetings and punctually. He took an interest in all aspects of the practice, both clinical and organisational. He engaged in decision-making but would also ensure these decisions were followed up. This was more a paternal leadership style, sharing his expertise and overseeing the practice. He also adopted a mentoring or parent type role for the students. The other GPs did not seem to mind this form of leadership; they overran in surgeries and seemed to enjoy the patient interactions and contact rather than the specifics of the practice organisation. Few practice decisions were made without the other GPs participating. The researcher felt this behaviour demonstrated a clear leadership style. However, he did not share this view to the same extent, feeling the practice was more egalitarian;

*"I think the practice manager is probably the one that would take credit for that. They like to, it's like herding cats, I think, looking after GPs. They tend to try and keep, ensure the meetings run properly and things maybe actually happen. Maybe I have niggle a bit in the background,*



*just to make sure that things get done, but I wouldn't say I had any greater influence or how they get done as compares to anybody else"* (GP 1 interview, Rubain).

Rosnish was a two GP practice but referred to as a single-handed practice, with the lead GPs values permeating throughout the practice. This GP had an autocratic leadership style. He had strong views as to how the practice should be organised; valuing organisation and simplicity. His vision and values were strongly reflected in both the clinical (including prescribing) and organisation aspects of the practice. Taking on a single-handed practice in light of the Shipman inquiry which criticised such practices, the lead GP wanted to demonstrate that single-handed practices could provide good quality care and thus had control over all aspects of the practice. He conducted the majority of consultations himself and gave close direction and guidance to the administrative staff, although he did seek their advice and the advice of the practice pharmacist.

*"...I make things simpler and simpler every month and so the need for me to be here at some point I think is not that big but on the other hand it's partly my personality that plays a role in this and so I'm struggling to let go completely because I know that I can't leave it all to (the second GP)"* (GP 1 interview, Rosnish).

The Haun was an egalitarian practice with no GP having any clinical leadership role.

#### *7.1.2.2 The practice manager role*

In Rosnish the lead GP was also the practice manager, whereas Rubain had invested heavily by employing two practice managers. Both these practices valued organisation and control. In the Haun, due to the high number of part-time staff, (both clinical and administrative) the practice

manager spent a considerable amount of her time organising reception, rotas and the day-to-day practice management.

The roles of the practice managers were different in all three practices, with Rosnish opting not to have a manager and Rubain and the Haun's managers having different input, roles and responsibilities. Essentially, the practice managers all had an organising and administrative role with Rubain opting to have two managers and less GP intervention. Rubain opted to handover full responsibility of the practice's organisational and administrative tasks to the practice managers. They were constantly chasing the GPs for signatures and the GPs seemed not to question their requests and were happy to be left to their clinical responsibilities.

*“Well, I think where we've given them the role of making decisions, yes, but I think quite often they haven't been given an executive role to make decisions about a lot of practice policy so we still have to meet together to talk through ....our days are spent more in clinical work and keeping up with the clinical work which is quite heavy, we gave up a part time partner who hasn't been replaced so we use locums quite a lot more than we used to...”* (GP 2 interview, Rubain).

The Haun's practice manager was managing rather than leading. Practice managers are employees of the GPs at the practice and only have a certain amount of influence and control. In a practice with a laid back culture such as the Haun it would be very difficult for the practice manager to impose stringent systems or to be too pushy in her managerial approach.

It was hard to gauge whether there was a great difference in the roles of the managers between Rubain and the Haun as the Haun communicated so much information via email it was harder to observe the practice manager at work with these administrative tasks. With Rubain having

two practice managers, the majority of their GPs working full-time and communicating face-to-face the turnaround in organisational and management decisions seemed to be more efficient. In Rubain the practice managers took pride in the practice being efficient and organised.

The practice manager in the Haun oversaw reception which was the senior receptionist's role in Rubain. With the high number of part-time receptionists a large amount of time was spent organising the rota and holidays. The practice manager was seen very much as part of the receptionist subculture as oppose to Rubain where they did not seem to be part of the clinical or receptionist subcultures. This distinguished the Rubain practice managers from the receptionists and facilitated a clear leadership role whereas in the Haun the professional boundary of the practice manager seemed less clear.

The role of the practice managers reflected the practice culture. Rubain and Rosnish valued organisation and control, in the larger practice two managers were required and in the smaller practice the control was retained by the GP. The Haun had a more laid back culture preferring less systems and control, however it is not clear whether the practice manager's role reflected the practice culture or if the practice manager could have been more active in shaping the practice culture.

Leadership was important for practice coordination. The leaders, clinical and administrative in the two high performing practices had an overseeing role which ensured issues were addressed and the practice was moving forward. In the Haun where the practice had a laid back, egalitarian culture, there was no clinical leadership and the practice manager was more heavily involved with reception than the other practice managers in Rubain. The practice culture of the Haun was laid back and a strong leadership role would have been out of place. However, it is

not clear if a leader had been in place the practice would have had a different culture and valued more organisation and control.

#### *7.1.2.3 IT system*

This observation was conducted in a period of turbulence for all practices, they had to transfer over to a new practice IT system at the health board's request. Rubain was on Synergy and did not transfer over during the period of observation, Rosnish transferred from GPASS to Vision during the researcher's observational time period at the practice and the Haun had transferred from GPASS to Vision before the researcher's period of observation with the practice.

Rubain was the most proficient with their IT system. The practice pharmacist had set hooks on the practice system to remind GPs they were about to prescribe something which was not on the practice prescribing formulary. This ensured when they changed their formulary they had an immediate and consistent behaviour change across the practice. These hooks were valued by the GPs but were part of Synergy and the practice lost them when they transferred over to Vision (period between observation and interviews);

*"I think, we don't have those hooks anymore and it's not quite as ... the IT system isn't quite as slick for prescribing...there has been some inconsistencies in prescribing without the hooks..... because the hooks gave us exactly what was agreed the approach to take whereas now you're kind of left to give a reasonable approach "* (GP 2 interview, Rubain).

Rosnish did not need such a system as there were only two prescribers who had their own clinical areas of responsibility which maintained consistency in prescribing. In the Haun as they did not value a practice prescribing policy there was no need for such a mechanism.

Rubain also used the IT system to embargo, monitor and release appointments. The practice managers monitored the availability of appointments to improve the availability of appointments to aid continuity of care and meet the requirements of the nGMS contract. This system allowed the practice managers to monitor the availability of both on-the-day appointments and those bookable in advance and release appointments as required. Despite transferring over to Vision this was a mechanism they were able to retain from their old IT system.

In the Haun all secondary care prescribing recommendations would go straight to their practice pharmacist who would change the medication to a generic medication or a cheaper medication from the same class if there was one. In Rubain and Rosnish these recommendations would go straight to the patient's GP. Rubain's IT system would inform the GPs that there was a cheaper medication available but in practice two there was no such mechanism in place.

Rubain was the most proficient practice with their IT system, utilising it to prompt GPs to consider the practice prescribing policy and to offer continuity of care to patients who valued it. In all three practices the IT system was key to their chronic disease management systems, for monitoring and recall. This is addressed in the next section below.

#### *7.1.2.4 Chronic disease management*

As a requirement of the nGMS contract, practices must review patients on medication for chronic diseases annually. The practices organised their chronic disease management systems differently. Rubain and Rosnish opted to review patients at the time of their birthday. In both practices all patients on repeat medication are invited to the practice for their 'birthday bloods', where the health care assistant or practice nurse would take their bloods and any other tests

which may need to be taken. However, the practice systems now varied, with Rosnish opting to call all patients in for a consultation with the GP once their results were through.

*“On the important things that I find important, yes because I think the reviewing of the chronic condition and so on and medication I think that is important and it’s not purely for the medication, it’s more to have seen the patient, have a discussion...Because when the patient comes in I don’t need to look at this screen, I’ve done that before they’ve come in so I can talk to them....And that’s what the important thing is to me, okay. I need to find out how are they, are they coping with their medication, are they coping with their limitations.”* (GP 1 interview, Rosnish).

Practice three has reminders pop up on the IT system which reminds the clinician to carry out the appropriate tests. However, if the consultation would over run, as they often did, this would be left till their next appointment. If patients did not come into the surgery for a consultation they would not be picked up in the system.

By comparing the practice’s chronic disease management systems it was clear to see Rubain and Rosnish had invested time thinking about a system which would ensure all patients on repeat medication were annually reviewed. As the Haun was a reactive practice they had organised themselves to meet the requirements of the nGMS but they had a system which did not ensure all patients on repeat medication were annually reviewed.

#### *7.1.2.5 Practice population*

Each practice had different populations. Prescribing decisions are context dependent so each practice had to interpret the evidence to suit their local population thus each practice had policies in place to suit their local populations needs. Rubain had a mixed practice population

with both young and old patients, urban and rural, affluent and deprived populations within its remit. Rosnish had an elderly, rural, affluent population and practice three had a young, urban, deprived population. The practice populations affected each practice's culture and organisation. With Rosnish being in an affluent and well educated population they looked after patients who were generally compliant and with little social problems. This is in comparison to the Haun's population which a large number of social problems as well as medical problems.

The Haun looked after a much larger number of patients with mental health, drug addiction and other social and psychological patients than the other two practices. These patients were less compliant, many were not well educated so it took more time to explain and educate them about their condition, and they required more consultations and more reassurance and were frequently more disruptive. These were confounding factors to practice's organisation. Frequently communication in the Haun was about individual disruptive patients distracting them from discussing practice policy for therapeutic groups as tended to be the case in the other practices.

Implementing new policy and changing medication was easier in Rubain and Rosnish where they had a more compliant practice population. Both these practices had time allocated to discuss individual patients but also allocated time to discuss practice prescribing policy. Due to the higher number of part-time partners, limited opportunities for face-to-face communication and their practice population meant any opportunities for face-to-face discussion in practice three centred on individual patients.

The populations of Rubain and Rosnish were less disruptive and more compliant, whereas the Haun had a minority of patients who were very disruptive to the practice. These factors all

contributed to the atmosphere in the practice, the time pressures and topics of face-to-face communication.

#### *7.1.2.6 In summary*

The two practices which performed well against the prescribing measures used in the sampling of this study were systematic and organised, valuing structure, efficiency and organisation. These practices were proactive, holding meeting to anticipate and plan for change whereas the practice which did not perform as well was reactive; they had not invested the same amount of time planning and organising. Leadership, both clinical and administrative, was important to drive and manage change and this study has shown IT systems can remind GPs of macro prescribing policy to improve consistency in prescribing policy across a number of prescribers.

Being organised, allowed practices to be more efficient as they knew what was going on; they had control over the day-to-day running of the practice. This involved working as a team rather than individuals, knowing who and where to access the information required. Rubain showed how useful the IT system is to being organised and consistent in their prescribing behaviour. Being organised is a dynamic process, demanding rethinking and renegotiating systems. Rubain and Rosnish were organised because they invested time in planning and thought about how they could do things differently. This required time for communication and reflection, which required practices to be organised to allow time for collective reflection.

#### *7.1.3 Communication*

The previous sections have alluded to how important communication is to practice organisation and macro prescribing. This section will explore the differences and draw comparisons across the three practice communication systems.



Communication is a fundamental part of any organisation. General practice teams have to work together to deliver care. General practices operate in a dynamic environment; EBM is constantly being up-dated so practices needed to communicate to engage in macro prescribing decisions. Practice systems and processes had to be redefined and amended to keep up with the pace of change. Communication was important for the practices to respond to change and function as a team, for all members of the practice team to build professional working relationships but also to be aware of what is going on, what has changed and why.

All three practices had formal and informal communication strategies, for redefining and maintaining shared work practices such as decision-making. The table below shows the different communication strategies and the frequency.

**Table 1 Communication strategies and their frequency**

	Daily	Weekly	Monthly	Ad hoc
<b>Rubain</b>	11 am meeting Coffee room at lunch time	Meeting practice managers	Prescribing meeting	
<b>Rosnish</b>	Coffee room at lunch time		Admin and clinical meetings	
<b>The Haun</b>	Email	Meeting community nurses		Prescribing meeting

### *7.1.3.1 Daily interactions*

Rubain and Rosnish had forums in place for daily interactions through either 11am meeting or during their lunch hour. These interactions provided the GPs with an opportunity to discuss individual patients and provided an opportunity to the other staff to communicate with the GPs. Through discussing patients GPs would learn about changes to their condition which provided opportunity to improve informational continuity of care and for informal learning. The Haun did have a weekly coffee break scheduled for the same purpose but it was poorly attended. Instead they relied on email, door knocking, opportunistically meeting in the corridor, or their IT system (which had a facility for administrative staff to leave messages for the GPs). These forums had the potential to limit the discussion to the matter in hand, offered less time for elaboration and discussion, and for tacit knowledge exchange.

Rubain and Rosnish's daily conversations would involve clinicians sharing work but also narratives about patients, on occasion just letting off steam but on other occasions looking for advice. Reciprocal stories would be shared. These conversations were an important way of sharing and validating values and norms and modifying them.

*“...I mean I think we do have similar values here to, you know, practice good medical care for our patient population as a team, and therefore we do collaborate and work as closely....”* (GP 2 interview, Rubain).

Without regular meetings the Haun was reliant on email as their primary means of communication. By communicating through email less information is passed on than would be the case in a face-to-face interaction as people write less than they would speak and body language and tone of voice are missed. There is also an opportunity for misinterpretation and miscommunication. Thus email did not facilitate consistency and corroborate prescribing norms in the same manner as through face-to-face interactions, but as a practice they did not place huge value in consistency in prescribing. It was unclear if they engaged in face-to-face communication about their prescribing they would also engage in more consistent prescribing behaviour.

In Rubain and Rosnish, suggestions and ideas would be generated through informal discussions and be raised as an issue they need to sit down and talk about in a formal meeting.

#### *7.1.3.2 Practice meetings*

Meetings were where shared decision-making took place, examining practice protocols, systems and structure; where agreement for change in behaviour took place. Most formal communication in each of the practices was between the clinical staff and the practice managers, however, Rosnish and the Haun had meetings with the community nurses.

Regular monthly clinical meetings were held in Rubain and Rosnish but tended to be ad hoc in the Haun. Having the meetings at set times seemed to help the clinicians remember they were

taking place. In Rubain and the Haun the main clinical meetings were chaired by the practice pharmacists and attended by GPs, practice nurses and practice manager(s).

*“I think the role of the practice pharmacist is a huge one, in practice of getting the partnership together and looking at our prescribing and we do that on a monthly basis, Friday lunchtime meeting.”* (GP 2 interview, Rubain)

Whereas in the Haun,

*“Well we have fairly regular meetings with..., I mean probably she arranges a meeting every 3 or 4 months with us particularly to discuss perhaps prescribing issues or things she had flagged up from the prescribing data, from the trust, what they want to have a look at with us.....she just contacts by email and if there’s anything she needs to discuss in particular she will let us know”* (GP 1 interview, the Haun).

In Rosnish, these meetings were attended by the GPs and the community nurses due to this practice not having a practice manager or nurse and the limited role of their practice pharmacist.

Rubain and the Haun relied on their practice pharmacist to inform them of the latest guidelines and communicate information from the CHP. In Rubain, the practice pharmacist also presented the CHP prescribing indicator report, which motivated the GPs to discuss why they were an outlier and make the decision of how they were going to change their prescribing behaviour.

*“Quite often we rely on the pharmacist to gather ... you know, you hear about evidence but we rely on X to review the current evidence and present it at the meeting where we discuss it”* (GP 2 interview, Rubain).

In the Haun these meetings were poorly and not punctually attended, where as in Rubain all clinical staff attended punctually, unless they were on holiday. The atmosphere at the meetings was very different; Rubain had a formal feel with the pharmacist presenting the research evidence and CHP prescribing report by PowerPoint presentation. The pharmacist at the Haun had the issues which needed to be discussed and addressed on pieces of paper and sticky notes. The discussion and debate was not as in-depth, with the GPs agreeing or disagreeing with the issues. By presenting more detail in a guideline generated discussion around some of the finer points and ensured all practitioners were aware of the evidence and justification of the guideline. This also provided an opportunity for practitioners to allocate time to engage and reflect with the evidence. These meetings provided an opportunity to share values, experiences and collectively reflect before modifying prescribing norms. As a practice, Rubain, valued discussing evidence, engaging in collective learning and having ownership of the prescribing decision-making, as the quote below illustrates;

*“I would try and follow the practice decision which is formulated at these meetings and there’s obviously, usually influenced by what (practice pharmacist named) says. I think its handy having a meeting. If you want ownership of a decision then it’s the best format, I think, is to have a meeting where everyone can turn up and usually as many people turn up as can, unless of course, you’re on holiday or ill or whatever and then you discuss it. There’s not usually any great arguments about it. I think we usually agree that, I can’t remember any meeting where the collective decision’s been to prescribe one particular medicine and someone’s put their hand up and says, well, you can if you want, I’m not going to do it. I think once we arrive at a practice decision then we do follow it. Although, as I mentioned, there are occasions when some of the doctors, for whatever reason, may not follow it to the letter, but generally, I think we try to follow it.”* (GP 1 interview, Rubain).

This quote from another GP at the practice shows the value Rubain placed in collective decision-making;

*“...you know there is the sort of collaborative decision making seems to have a lot more strength to it than you know giving an edict from a group...”* (GP2 interview, Rubain)

Visually focusing the clinicians’ attention to the same issue and going through the issues in more detail seemed to generate more debate in Rubain and influenced practice policy; however it is not clear whether this strategy would have worked for the Haun. The pharmacist in the Haun felt they did have debate but through observation at a number of meetings in both practices it was clear Rubain engaged in much more. Despite the poor attendance at the Haun’s meetings the pharmacist felt everyone had the opportunity to have their views heard.

*“Yes. I enjoy the debates. I think you came along to one of the good meetings which was really interesting because it was when there was atorvastatin to simvastatin switch and that was a really, really good example where the Health Board would suggest therapeutic switch on the basis of cost.”* (Practice pharmacist interview, the Haun).

A GP expressed that she did not think they had communication issues;

*“I don’t think there’s a problem with communication, we never sort of feel that we are not able to communicate. I think you spend your life organising meetings and never actually do anything, so you don’t want to be over, you know let’s meet for every tiny thing to discuss it, you know you’ve just got to get on with it. I don’t think we suffer too badly from lack of communication....we are seeing each other regularly to catch up.”*(GP 1 interview, the Haun)

With a large number of part-time staff attendance and collective decision-making was difficult, however, all the GPs did not seem to make the same effort to attend or punctually. The practice did not seem to place the same value on collective decision-making, allocating time to reflect and modify their prescribing norms and behaviour. As a practice they did not value consistency in their prescribing behaviour so did not value collective decision-making. The researcher was unclear whether they did not value this activity or had not recognised the potential of such an activity.

In Rosnish clinical meetings would involve reviewing the results of audit, discussing patients in the community or an issue raised through clinical practice. In this practice they also engaged in the issues in depth and discussed the finer points. The practice pharmacist had informal discussions with the GP around CHP recommendation and policy and if these recommendations were in line with values the changes were implemented.

#### *7.1.3.3 In summary*

Rubain and Rosnish were organised to ensure face-to-face communication, shared learning and decision-making meant consistency and compliance to a prescribing formulary was easier to maintain. By discussing the practice formulary prescribers have more ownership over the decision-making and were more likely to comply. The Haun felt they had good communication, but they did not meet regularly to discuss their prescribing as they did not value this as a practice. The practices organisational issues did make collective decision-making and consistency harder to achieve, with so many part-time staff having regular meetings to discuss prescribing was difficult to time-table. However, evidence from Rubain has shown in practices with multiple GPs, face-to-face meetings with summarised research evidence engaged practitioners with the evidence and provided an opportunity to present CHP prescribing policy.

Practices needed to value collective decision-making and consistency in prescribing behaviour to engage in discussion and debate around reviewing macro prescribing. Where collective decision-making was valued all practitioners engaged in discussion and debate which gave ownership of their macro prescribing policy. In the practice which did not value macro prescribing the practitioners attended these meetings to maintain competence and to keep up-to-date with the evidence, but these meetings were poorly and not punctually attended.

Through working and communicating practices develop shared values, beliefs and assumptions, which are defined and shared through communication. How a practice is organised and its culture is established, maintained and changed is through communication. GPs do not work on their own so communication is an important part of information, knowledge exchange and trust.

#### *7.1.4 Practice values*

Each practice valued looking after their patients but the associated values as to how this should be achieved varied. Some values were held dearer in one practice compared to another. Values towards communication, EBM, performance measurement, quality versus cost prescribing, continuity of care, organisation and leadership were pertinent values which emerged through the research. The practice values directed their motivation and inspiration and thus shaped the practice norms; how the practice was organised, how they communicated and worked as a team and how they implemented EBM.

Rubain valued teamwork, cohesiveness, competition (with other practices in the CHP), shared decision-making and consistency in their behaviour. Rosnish valued simplicity, creativity, innovation and change. Both these practices valued organisation, processes and systems. The



Haun valued egalitarianism, informality, and clinical autonomy and tended to shy away from formal organisational processes and systems.

Rubain's values of teamwork, shared decision-making and consistency in their prescribing behaviour led them to organise themselves to have regular face-to-face meetings, tight protocols and systems and to utilise their IT system to implement their decisions. Rosnish's values of innovation were instigated and implemented by the lead GP who invested time and effort into regularly thinking about how the practice's systems and processes could be improved. This GP valued simplicity and constantly thought about how to simplify systems and processes to allow him more time to focus on quality of care and prescribing. Both Rubain and Rosnish valued reviewing the evidence where suggestions and ideas for change were instigated, along with ideas through practice. The Haun valued clinical autonomy which led them to shy away from tight processes and systems and consistency in their prescribing behaviour. Their egalitarian value led them away from having any leadership and less formality, with the recent change instigated through the contractual change of the nGMS contract rather than any in-house refinements.

Both Rubain and Rosnish had a practice identity which saw themselves as 'one of the best' and believed prescribing was core to this. Rubain measured and monitored their performance against other practices in the CHP by the prescribing indicator report. Rosnish valued EBM and quality of care and quality of prescribing and invested a great deal of time in ensuring this was achieved across the practice. In the context section it was clear practices engaged with EBM and CHP quality improvement mechanisms they valued. They recognised that responses to EBM and CHP mechanisms required collective decision-making and macro prescribing decisions. Both these practices believed that the way to achieving high quality care and being 'the best' was not just providing high quality clinical care based on EBM but also improving

the organisation of that work. These practices invested time communicating, organising themselves but also refining their processes and systems.

#### *7.1.5 Practice identity*

Weick (2001)'s work on "organisational sensemaking" provided a useful lens with which the researcher could interpret her findings. Although it is not appropriate to refer to the literature in a results chapter, the author felt, in this case it was appropriate to refer to this literature. "Sensemaking" is about how organisations make sense of all the factors which impact on their work, through their values and identity (Weick, 2001). This macro prescribing section has shown the number and extent of influences on practice prescribing behaviour and how practices organised and communicated to deal with these influences. Sensemaking is about developing an identity through engagement with ongoing circumstances and influences. This identity then shapes future behaviour. The practice's values guided their organisational structure and processes, and communication strategies and shaped their practice identity.

Through working and communicating practices develop shared values, beliefs and assumptions, which were defined and shared through communication. How practices are organised and their culture is established, maintained and changed was through communication. GPs do not work on their own so communication was an important part of developing and reinforcing shared values and the practice identity. Rubain and Rosnish engaged in regular face-to-face communication and thus had a strong practice identity, of seeing themselves as one of the best and believed through their prescribing and being organised was how this could be achieved. The practice identity drove their practice organisation, especially their communication channels, but was also driven by their organisation characteristics (such as number of part-time staff). Rubain and Rosnish had a strong

prescribing identity but they also had effective communication channels, tighter processes and systems and co-ordinated practice organisation.

The Haun was reactive to their organisational structure. They had a high number of part-time staff so relied on IT for communication. By not communicating face-to-face they did not seem to have such a strong practice identity. They were autonomous rather than collective which could be why they did not have a strong identity. The other two practices were clear they wanted their identity and they regularly engaged in communication which reinforced their identity. As the Haun did not have co-ordinated practice organisation or collective face-to-face communication their prescribing practice identity was weak. It is not clear that if they engaged in more collective macro prescribing and face-to-face decision-making they would develop a strong practice prescribing identity.

#### *7.1.6 Macro prescribing summary*

Macro prescribing decisions are collective prescribing decisions about populations or groups of patients. Practices make prescribing decisions about the ‘average’ patient. These macro decisions were shaped by the practice’s identity. The practice’s identity shaped how practices were organised and how they communicated and thus how they made macro prescribing decisions.

Practice prescribing meetings were shown to be useful to engaging practices with EBM and CHP and HB policy. Practitioners felt they did not have the time to engage and reflect on EBM themselves, so practice prescribing meetings provided an opportunity for practitioners to collectively engage and reflect and modify their prescribing behaviour. The practice pharmacists had an important role in leading these prescribing meetings and helping practices interpret their prescribing data into prescribing information. Face-to-face communication,

shared learning and decision-making meant consistency and compliance to a prescribing formulary was easier to maintain.

The practices which implemented macro prescribing policy were systematic and organised. By being organised the practices created time which could be used to hold meetings to anticipate and plan for change. Also by being organised the practices had control over the day-to-day running of the practice and were working as a team. Rubain has shown that these macro prescribing decisions can be implemented consistently across all practitioners by use of the IT system.

Practices which performed well against the prescribing measures used in this study were systematic and organised. These practices valued collective decision-making. Without these values and an organised and systematic practice the practice pharmacist was limited in the effect they could have at the macro prescribing level.

## 7.2 Micro prescribing

Micro prescribing decisions are about applying EBM and macro prescribing to the individual patient. Each patient is unique with their own views, values, preferences and circumstances. In elderly and complex patients prescribing decisions were rarely black and white and were influenced by presence and severity of multiple symptoms and conditions. Micro prescribing decisions require interpreting macro prescribing policy using the clinical judgement and experience, in light of a patient's preferences, values and circumstances. This PhD found two strong influences on micro prescribing decision-making; prescribing mindlines and continuity of care. Each of these is considered in turn;

### *7.2.1 prescribing mindlines*

During consultations with patients GPs did not look up information about medicines and relied on their knowledge and experience. This knowledge and experience had been developed into personal formularies. Again, although it is not appropriate to refer to the literature in a results chapter the author felt it was appropriate in this case to refer to the paper which helped her interpret her findings and led her to recognise these personal formularies (Gabbay and le May, 2003). Gabbay and le May's (2003) work showed how clinicians rarely used explicit evidence and relied on tacit guidelines, which they referred to as mindlines (further information and discussion of the impact on the findings is given in the discussion chapter). Hence, to maintain consistency personal formularies will be referred to as prescribing mindlines. The GPs in all three practices relied on social networks to update these prescribing mindlines, such as their colleagues, secondary care, and prescribing meetings and advice from their practice pharmacist. These discussions were where practitioners engaged in sensemaking at the micro prescribing level. This section will discuss these various sources of information for 'prescribing mindline' development.

#### *7.2.1.1 Experience*

Every GP placed experience as their highest valued and strongest influence over their prescribing. Experience is knowledge which is gained over a period of time, through medical training, years of practice and exposure to a number of different prescribing decisions and their outcome.

*"....I think a lot of us probably were doing a lot of habit prescribing, and we probably still do that, because you just prescribe what you're familiar with...."* (GP 3 interview, the Haun)

As another GP illustrates;

*“..I mean things are definitely habitual, I always prescribe a particular drug, I know those off the top of my head, why would you prescribe an alternative that you didn’t know so much about”* (GP 1 interview, the Haun).

By prescribing drugs the GPs knew well they could make prescribing decisions quickly and with confidence. When the GP initiated medication they did not know well the GPs would prefer to see the patient more frequently and would consult colleagues and the practice pharmacist for further advice and reassurance. Experience was variable between the clinician’s length of time in practice and the training they received; therefore in the Haun where they did not have a practice prescribing formulary there were differences in prescribing behaviour between the GPs.

An important part of experience gained in ‘years of practice’ was seeing patient’s experiences of various medications. Experience or knowledge of the patient was also important for their prescribing decisions. Knowing the patient helped the GPs make intuitive decision-making. They knew what the patient would tolerate and how they would cope with various treatment regimes. Also, the GPs understood and could read the dynamics of the consultation more accurately.

#### *7.2.1.2 Secondary care*

All the GPs referred to secondary care as being one of the strongest influences over their prescribing. The GPs would follow prescribing advice and trends from secondary care and also learn about new medications, through looking after patients on medication which had been initiated by secondary care.

With new medications initiated in secondary care the GPs had limited knowledge, which required them to read and learn more about the medication to adequately look after the patients in their care. As they looked after more and more patients on the medication they gained experience. Through their experience GPs came to form views and opinions of various medications prescribed by secondary care and build preferences of certain medication which they would come to prescribe more of themselves.

*“....there’s been new drugs that have come onboard and the way they’re being used is according to the local specialist and how they prescribe, so we do have some influence with the specialists..”* (GP 2 interview, Rubain)

Another GP more strongly illustrates this point;

*“The only thing that changes for me is if a new drug comes in and the consultants at the hospital are telling me to use it because they think it is good and they get feedback from other professionals and consultants that it is good and then I’ll start using a new drug. I don’t tend to use it off my own back, I tend to use it from recommendations from other people and doctors and consultants. So the only changes in my prescribing are basically new drugs”* (GP 2 interview, the Haun).

All GPs referred to consultants as an influence on their prescribing and in Rubain and Rosnish the strongest reason why they would deviate from the practice prescribing policy/formulary. GPs tended to follow recommendations from consultants. On occasion GPs would consult with the pharmacist before prescribing but generally followed the consultant’s recommendations. The GPs would start to notice a trend in consultant prescribing, and if they felt comfortable and knew the medication they would also come to prescribe like this. Thus, prescribing initiated in

secondary care and consultant recommendations were an important part of the iterative development of prescribing mindlines.

#### *7.2.1.3 Interactions with colleagues*

All practices valued their colleagues as an important source of information; they would share experiences and ask advice from colleagues.

Within each practice, often a number of GPs had an individual area of interest and the other GPs would ask them for advice. The quote below illustrates the influence colleagues had on each other's prescribing. When asked about what influences her prescribing a Haun GP replied;

*"I guess the other doctors in the practice. I mean if you are, if I have got a difficult problem I will take to my other doctors and take advice about what they would do. Seeing what the people have done when you look at notes, somebody is prescribing this or somebody treats that way, what comes out of hospital, hospital doctors recommend"* (GP 1 interview, the Haun).

The researcher observed these interactions in Rubain and Rosnish opportunistically and openly discussed in meetings and the coffee room. Whereas the organisational features of the Haun meant this was more difficult so they tended to have these conversations one to one, with trusted others and behind closed doors. Discussing individual patients was a sensitive issue which may also have been why the GPs in the Haun chose to interact differently.

GPs would also discuss secondary care recommendations with colleagues and seek advice. Rubain and Rosnish had regular daily conversations which would involve clinicians sharing work but also narratives about patients, on occasion just letting off steam but on other



occasions looking for advice. Reciprocal stories would be shared. These conversations were an important way of sharing and validating values and norms and modifying them.

*“...I mean I think we do have similar values here to, you know, practice good medical care for our patient population as a team, and therefore we do collaborate and work as closely....”*  
(GP 2 interview, Rubain).

The GPs would also ask their practice pharmacist for advice on an individual patient; advice on dosing, interactions or suggestions of what to prescribe. The practice pharmacist would search the relevant literature, BNF and Martindales for the GPs.

*“...people who are on drug interactions or side effects from the drugs, she is very good at, if we’ve got queries about drugs or dosages or interaction she’s very good at that.”* (GP 1 interview, the Haun)

These interactions and information sharing resulted in the iterative development of prescribing mindlines. As discussions were not exclusive in Rubain and Rosnish these prescribing mindlines were collective and shared, whereas they were only shared among a trusted few in the Haun. The large number of part-time staff and the lack of face-to-face communication channels mitigated the collective sharing of stories and mindlines. Through regular communication and discussions in Rubain and Rosnish the prescribers developed shared prescribing mindlines but retained a degree of individual interpretation based on their personal experience, preferences and values.

#### *7.2.1.4 Prescribing meetings*

The practice pharmacists in the larger practices held prescribing meetings where they would filter evidence and CHP prescribing policy into the practice (see section 7.1.1.4). At these

meetings the practice pharmacists would also interpret this evidence in light of the practice system prescribing data and through discussions this information would become internalised. This information was another source of knowledge for the iterative development of their prescribing mindlines and in Rubain an opportunity to help develop shared prescribing mindlines.

*“....what you find at the prescribing meeting is that when we’re discussing how we use the guideline sometimes things come out ‘oh, maybe I’ve not been using it right’ and some of your colleagues can ... you can discover that yes you should actually be checking the untreated blood pressure...”* (GP 2 interview, Rubain).

#### *7.2.1.5 Journal articles*

All GPs appreciated the importance reading of journal articles, which was viewed as an informal and personal task for each GP in each practice. However, in Rubain and the Haun the GPs seemed to struggle to regularly allocate time to review journal articles. In Rosnish, the lead GP enjoyed searching the literature. He dedicated part of his time to reading the BMJ every week and would conduct literature searches himself to inform practice. He viewed reading and taking part in research as an important part of being a good practitioner and keeping a rural practice engaged with developments so the practice was organised which allowed a regular review of EBM. In Rubain and the Haun, (the larger practices) they had practice prescribing meetings which kept them up-to-date with the evidence. However, journal articles did not have the same immediate effect on his behaviour as a new guideline did. They provided background information and would plant ideas and encourage reflection. Their effect was accumulative, through reading numerous articles over a period of time, gradually integrating the evidence in practice.

*“... I read the BMJ every Friday when it comes in or Saturday morning, okay, now if you read that there’s a lot of things you can take away from it. But it’s often not directly applicable to next week’s patients or..... It adds background noise or reading..... And evidence, yes but the thing is if we used a guidelines extremely strict then, I don’t know how to put it really.” (GP1 interview, Rosnish)*

#### *7.2.1.6 Drug representatives*

All three practices played down their engagement with drug representatives. In Rubain, the drug representatives were occasionally used to provide a ‘free’ lunch and in return at least one GP had to converse with the representative. The representative would also leave promotional material, e.g. leaflets, pens and post-it notes which would be left in the coffee room. In Rosnish, the second GP felt she did not have the time to keep up with the evidence and relied on drug representatives to provide her with some information. The lead GP claimed to have nothing to do with the drug representatives but was observed on one occasion having to converse with the representative in the second GPs absence. Also promotional materials were left lying round the coffee room after a drug representative visit. In the Haun, the practice claimed to only see drug representatives once a month in the practice and at PLT meetings. However, drug representatives were used to provide a ‘free’ lunch at meetings which were ad hoc.

In Rosnish and the Haun, their practice pharmacists referred to GPs in these practices who liked to prescribe new drugs. As the Haun did not have a prescribing formulary and as it was much easier to change the formulary with few prescribers in Rosnish, it was more likely drug representatives could have had some kind of effect in these practices. With Rubain adhering to a prescribing formulary and the strong presence of the practice pharmacist, it is likely they had

less opportunity to have an effect. The quote below is an example of the type of response the researcher received when she asked about drug representatives in Rubain;

*“....they used to be more of an influence in the old days. They don’t tend to influence things so much these days because we always tell them that for any change in our prescribing it would have to be discussed with (practice pharmacist named) and so they should really speak to (practice pharmacist named). You do tend also to find that, they tend to all be promoting the same type of medicine anyway. They’re not often coming along with a completely new thing, it’s just an alternative. Proton pump inhibitor, an alternative, serotonin uptake inhibitor, so it’s not all that often they come along with a completely new product and then you quite often find that the new product hasn’t even been approved for use in Scotland anyway, or in (health board named)”* (GP 1 interview, Rubain).

Although, all practices saw drug representatives the GPs reported viewing the representatives with scepticism and thus them having little or no influence on their prescribing behaviour. As changes in prescribing were slow it was difficult to observe how much of an effect drug representatives had on each practice, particularly as GPs tended to prescribe drugs they were familiar with rather than new medications. Due to the social nature of GP learning, one GP in a practice conversing with drug representatives could potentially have an effect on their colleagues.

#### *7.2.1.7 In summary*

Changing prescribing habits is very difficult. This PhD has shown prescribing behaviour does change but gradually and in a cumulative manner accumulatively influenced by a number of different sources. GPs tend to prescribe from personal formularies or prescribing mindlines, which are iteratively developed from experience, macro prescribing policy, secondary care,

advice from the practice pharmacist and from conversations with colleagues. It is possible drug representatives also play a minor role in prescribing mindline development; however GPs tended to prescribe medication they were familiar with. Prescribing from mindlines allowed expeditious prescribing decisions to be made with confidence. Through regular communication and discussions these prescribing mindlines were shared with clinicians retaining a degree of personal interpretation. In the Haun, 'prescribing mindline' development and refinement was between a few trusted individuals.

### *7.2.2 Continuity of care*

The nGMS contract provides financial incentives to practices to achieve targets on speed of access (within 48 hours) therefore, relationship continuity of care was harder to achieve. Continuity of care was valued by all practitioners however, Rubain and Rosnish organised themselves to achieve optimal levels of relationship continuity. With relationship continuity present the GP and patient had a trusting relationship, the GP knew about the patient's background, circumstances and often their values and preferences. This study also found GPs were not keen to change medication in a patient who usually consulted another GP, so with problems maintaining continuity of care patients could wait to have their medication changed. With relationship continuity, the GPs were frequently able to make expeditious prescribing decisions, encourage patients to take their drug of choice and thus adhere to macro prescribing policy. In more complex cases, prescribing decisions were not always made in the initial consultation; patients could be given time to consider treatment options and/or GPs would consult their colleagues to gain information to aid this complex prescribing. These findings are considered in turn by comparing the different values and organisation of continuity of care in the three practices.

Rubain placed high value on relationship continuity. They relied on locum cover for on-the-day appointments leaving patients to have continuity of care with their chosen clinician. They used their IT system to embargo and monitor appointments to try to maximise the availability of appointments bookable in advance with their permanent GPs. The IT system allowed the practice managers to monitor the availability of on-the-day appointments and they could release more appointments for 'on-the-day' or 'bookable in advance', if they were required. The practice collectively developed and refined protocols which improved management continuity and as relationship continuity was valued but not always achieved they utilised informational continuity (the patient's notes).

Rosnish valued relationship continuity of care and with only one full-time, one part-time GP and the smallest list size this was easier to achieve, particularly as they had their own areas of responsibility. With a rural and elderly population, their population was more stagnant so they invested a great deal of time educating patients about their condition and ensuring they understood. This practice felt once patients understood their condition they could self manage. Investment such as this was more likely to pay off when you have few GPs. Many of their patients with a long-term conditions and stable on their medication were only seen annually at their medication review clinic, which is why this practice managed such a large list size for the full time equivalent number of GPs. To maintain a good doctor - patient relationship the GP liked to conduct all medication reviews face-to-face with his patients;

*"....But the thing is when you do it yourself you've got that relationship, everything is quite clear whereas if you delegate it then it's done in a very formal and rational way and I don't know how well it's gone down and it's sometimes I get people over who want to discuss it anyway... Because they want to know what I think. Luckily not too many but, yes."* (GP 1 interview, Rosnish)

Informational continuity was also high at Rosnish as the receptionists were all members of the local community and had been all their lives. The receptionists were an invaluable source of information to the GPs about patients, informing them of who was related to whom, their family history, how they had coped and what their attitudes had been in the past. The senior receptionist was also married to the local community pharmacist so there was a direct link of information back to the practice.

The Haun valued continuity of care but struggled to achieve high levels of relationship continuity. With the majority of their appointments bookable on-the-day and the majority of their GPs working part-time, meant this was hard to achieve. Clinicians could override the system and book on-the-day appointments in advance for patients they would like to see again, but this resulted in lack of availability of on-the-day appointments. Although the practice valued relationship continuity they did not balance this with the high number of part-time partners and their appointment system. This had a negative impact on the small number of full-time partners;

*“a patient will come to a doctor who then goes away, they come to me for follow up a few days later, I don’t know the patient, their condition and I’ve got to sort out what the previous doctor has done so the patient may get side-effects or problems or have a development in their condition when the doctor they have been seeing for that condition is off. And so it actually increases my workload, I am often having to look at patients I don’t know very well, and I think that’s not very good because continuity is so important”* (GP 2 interview, the Haun).

When patients were seen by different GPs, the practitioners relied on the patient’s notes and patient’s accounts of their ‘story’ to decipher the previous GP’s train of thought. When seeing another GP’s regular patients the GPs tended not to change any medication. They were not

keen to change medication another GP initiated as there could have been a valid reason for that decision they are not aware of. The Haun did not value tight protocols, a practice prescribing formulary (referred to in the literature as information and management continuity of care) or consistency in prescribing and did not discuss prescribing practices as a group. Without these systems the GPs relied more on clinical autonomy, which resulted in inconsistencies in their prescribing practices and made deciphering another GPs train of thought more difficult. As a practice, the Haun had been reactionary to the nGMS contract, which states patients have to be offered an appointment within 48 hours. They had met with the contractual requirements, but had not invested time to try and manipulate the appointment system to improve relationship continuity of care. There was an assumption that by being able to book on-the-day appointments in advance the practice was achieving continuity of care where necessary.

The techniques and strategies for prescribing quality improvement and to rationalise clinical decision-making can be perceived as a threat to patient-centred decision-making. In all three practices, all prescribers would prescribe a generic preparation first line which resulted in patients being given little choice. When GPs were prescribing generic preparations the options to offer patients were limited, such as capsules over tablets but even then the CHP did try to influence these decisions on the basis of cost. The clinicians seemed to appreciate they had to make rational decisions and much of patient-centred decision-making centred around making patients feel engaged in the decision-making process which involved making sure they understood why they are proposing a certain medication and make patients aware of the constraints within which they operate. Many prescribing decisions are 'trial and error' and with relationship continuity GPs were able to encourage patients to try their suggestion first or the patients were happy to trust the GPs recommendations. With more complex patients, where important considerations had to be given to different treatment regimes patients were offered more choice based on their preferences. This did lead to greater variation in practice however,



these were in much smaller numbers of patients thus consistency was less important and continuity of care, in particular trust between the doctor and patient became much more important.

The Haun was the practice that reported much more upheaval and upset to patients as a result of changing medication for prescribing incentives or as a result of recommendations from the CHP. They reported that patients were not happy their drugs had been changed; they would not accept change and this resulted in increased administration time informing patients of the changes and more consultation time dealing with the fall out. This practice was also the practice which had the lowest levels of continuity of care, without the fundamental element of relationship continuity of care, trust; patients could easily have felt that their care is being compromised.

All the GPs enjoyed looking after patients they know, where they could see where they had made a difference to the patient's life, this was an aspect of their job all GPs took some satisfaction. This is only achieved through relationship continuity and with the nGMS contract this was harder to maintain. As Rubain and Rosnish valued relationship continuity of care so highly they had organised and invested time into their appointment system and practice management to ensure they could deliver maximum levels of relationship continuity to those patients who valued it. The Haun did not seem to have considered the possibility of investing time and resources to think about how they could manipulate their appointment system to improve relationship continuity.

#### *7.2.2.1 In summary*

This study found all GPs valued continuity of care but the high performing practices organised themselves to offer maximum levels of continuity of care. This has shown multi-partnered

practices can manipulate their appointment systems in sophisticated ways to offer relationship continuity to those who value it. This study also found GPs were not keen to change medication in a patient who consulted with another practitioner, however, due to the nGMS target this could have been the only appointment a patient could access. Therefore, without a system for continuity patients would need to visit the practice again to consult with their regular practitioner.

This study found that relationship continuity enabled GPs to implement macro prescribing policy where possible. By having a relationship with patients GPs were able to make patients feel part of the prescribing decision by explaining why they were proposing this medication and making patients aware of the constraints within which they operate.

### *7.2.3 Micro prescribing summary*

Micro prescribing is about applying EBM and macro prescribing policy considering the patient's circumstances, views and preferences. Therefore, GPs have to interpret EBM and macro prescribing using their clinical judgement and experience. The GPs used prescribing mindlines, iteratively developed from years of experience and information and advice from trusted colleagues (other GPs, practice pharmacist and secondary care consultants) to make expeditious prescribing decisions. Relationship continuity of care also allowed expeditious prescribing decisions as the GP had a relationship with the patient, they knew the patient's background, circumstances, preference and values but also the patient's trusted the GP's recommendations.

In the practices which performed well against the prescribing measures used in this study these prescribing mindlines were shared by all GPs in the practice. Also both these practices had invested time to offer optimum levels of relationship continuity to the patient's who valued it.

In the Haun, where relationship continuity was not present the GPs were not keen to change medication initiated by a GP the patient regularly consults with. As a practice they only discussed prescribing with a trusted few therefore prescribing mindlines were not shared and interpreting another GPs train of thought was more difficult, so a patient's medication was less likely to be changed.

### 7.3 Chapter summary

Practices made two different kinds of prescribing decision; macro and micro. Macro prescribing decisions are influenced by EBM and CHP policy. When making macro prescribing decisions practices consider the 'average' patient and formulate macro prescribing policy to rationalise and standardise prescribing. Practice pharmacists are effective in leading prescribing quality improvement in larger practices, filtering EBM and CHP policy into the practices and interpreting the practice system level data in the context of changing evidence. Practices needed to value collective decision-making and consistency in their prescribing behaviour to formulate macro prescribing policy. Consistency in prescribing behaviour requires effective communication, and effective communication is important for shared values and practice identity. The practice identity influenced the practice values, communication and organisation thus having a direct impact on their macro prescribing policy formulation as well as implementation.

As macro prescribing considers the average patient, some patients, in particular the elderly or those with complex or co-morbidities, justify deviation from macro prescribing policy. In these situations the GPs relied on prescribing mindlines. In the practices with effective communication strategies these prescribing mindlines were shared so consistency was maintained through an 'informal prescribing formulary'. Continuity of care was important for a relationship between the GP and the patient where GP was aware of the patient's

circumstances and preferences and could make a recommendation in line with these and the patient would trust the GPs recommendations.

## THE DISCUSSION CHAPTER

### 8.1 Introduction

The previous chapter compared the three practices and presented the results of this PhD under the important concepts which emerged from the analysis. In this chapter, theories have been applied to the data to help define and explain these concepts. These theories provided important frameworks to allow the researcher to critically understand the data and concepts and provided greater explanatory power.

This PhD had started with an open-mind as to ‘what influences prescribing decision-making’ but as the fieldwork and analysis became more focused it became clear prescribing decisions were made by GPs at two levels; macro and micro. The macro prescribing decisions were strategic decisions shaping practice prescribing policies and practice organisation, and the micro level prescribing decisions are made about the individual patient. Through this PhD it became clear the influences on and mechanisms for macro and micro prescribing decisions vary and were made in different contexts; macro decisions were made as a group and micro prescribing decisions were made by the individual. Before the discussion of the findings the methods used for this study are considered.

### 8.2 Methodology

This section will discuss whether the methods in this study facilitated answering the research questions and if the research findings are transferable to a different population.

### 8.2.1 Choice of method

The intention of this study was to explore the influences on the prescribing process in primary care to better understand why practices do not always engage with evidence based medicine. Previous studies have explored influences on type of drug (Crowe *et al.*, 2009, Cantrill *et al.*, 2000, Butler *et al.*, 1998), focused clinical area (Walker *et al.*, 2001, Bertoni *et al.*, 2009), guidelines (Eccles *et al.*, 2002, Grol *et al.*, 1998, Wathen and Dean, 2004) or the doctor/patient relationship (Gibson *et al.*, 2006, Britten *et al.*, 2004, Virji *et al.*, 1991) but no study to date has been found which explored all influences on practices in a holistic manner. An ethnographic methodology allowed the researcher to explore the various influences in context and without applying a predetermined hypothesis, allowing the findings to be derived inductively from the data. Using participant observation as the main method of data collection allowed direct and sustained contact with prescribers, who were able to inform the researcher when she was misunderstanding and misinterpreting their behaviour. There are a huge number of factors influencing prescribing but the iterative-inductive nature of ethnography allowed the researcher to constantly move between the research questions and data to refine the questions and subsequent line of enquiry into a more focused piece of work with inductively derived findings verified by participants.

The strength of this ethnographic work was the number of hours of observation (over 390; appendix 6) carried out across the three practices, which allowed relationships to be built with the members of each practice and access to all aspects of prescribing. By repeated visits over a period of time the researcher was able to test and validate the emerging analysis and interpretation, to produce a rich and in-depth representation of their prescribing behaviour and influences. As the social world is constantly changing this was only a 'true' representation at the time of observation.

As this study observed GPs, practice staff and patients but only informally interviewed GPs and practice staff this research does lack the voice of patients, however some data was gathered on their perspectives through observed consultations, albeit inferred. Ethnographies in health and medicine are still rare due to the practical and ethical issues associated with observing research participants (O'Reilly, 2005), particularly patients. At the time of designing this study it was felt the study may not get ethical approval if the researcher was to track patients. Therefore, some of the issues raised about 'the patient' are from observed interactions, practice staff and the researcher's perceptions and from what is already known in the literature.

By using ethnographic methods the research is shaped by the researcher-subject interactions making this study more interpretative than if other methods had been used however, the detailed methods chapter containing reflexive accounts of the researcher's decisions during the study allow the reader to assess the transferability of these findings (discussed below).

### *8.2.2 Generalisation and transferability of the findings*

The aim of this research was to produce information that can be shared and applied to general practices outside the sample and health board area in which the research was conducted. However, no study, regardless of the methods used, can provide findings which are universally applicable (Murphy *et al.*, 1998). This section discusses what is meant by generalisability and transferability and guides the reader to consider whether the study findings can be applied to their own areas of interest.

Generalisability is concerned with whether the findings of a study can be relevant beyond the sample and context of the research (Lewis and Ritchie, 2003). Thus generalisation is aided by using methods which include a study population that is representative of the population it wishes to generalise. This has different issues for qualitative and quantitative research; where

quantitative research uses sampling methods such as random sampling to increase the likelihood of being able to generalise the findings. However, “the particular value of qualitative research lies in its ability to explore issues in depth and from perspectives of different participants, with concepts, meanings and explanations developed inductively from the data” (Lewis and Ritchie, 2003; 267). This PhD adopted a constructivist epistemology, thus qualitative research should focus on the more modest goal of ‘transferability’ (Lincoln and Guba, 1985). Lincoln and Guba (1985) argue that transferability is dependent on the congruence between the context in which the research has been conducted and the context to which the research will be applied. Thus this research has provided ‘rich’ descriptions of the three practices so the reader can gauge and assess the meanings attached and consider whether the findings can be applied to their area of interest.

The nature of description in ethnographic work is always selective. “It is not possible to give an exhaustive account of any locale. In producing descriptions we always rely on criteria of selection and inference” (Hammersley and Atkinson, 2007; 32). Chapter three, the methods chapter has attempted to provide sufficient information about the researcher’s ontological and epistemological perspective and the decisions made during the research process to allow the reader to decide in what ways and to what extent the research findings can be transferred to their setting.

To guide the reader in their consideration of the transferability of these findings, the author discusses the sampling strategy adopted in this PhD and considers whether it supported the aims and objectives of the study.

A purposeful sample of general practices was identified by using Audit Scotland (2003) prescribing quality indicators (Appendix 2) and applying these to a year of PRISMs data.



Prescribing indicators are a quality improvement technique used to monitor and change prescribing. These indicators were currently being used by the CHPs to identify variation between practices and by benchmarking practices against one another, motivating them to change. The intention was to recruit practices by their responsiveness to these indicators.

The quality of prescribing is hard to measure. Prescribing indicators are frequently used however they generally have low validity (Campbell *et al.*, 1999). The Audit Scotland prescribing indicators had limited validity because they could only link into PRISMS data, which could measure cost and volume but could not link to diagnosis. However these were the best available indicators and data at the time of sampling. Now with improved recording of data in general practices with nGMS and QOF it is possible to link to diagnosis but the informatics for extracting the data from practice IT systems was not yet developed. A recent study used the same sampling method on the population used in this study but with more up-to-date and revised prescribing indicators and ranked the practices in similar positions. (This study is not published but further information is in appendix 5). Therefore, although these prescribing indicators had limited validity, they provided a reliable method of identifying and ranking practices which respond to quality prescribing performance measures.

This research was conducted in a health board area which is unique in its investment in practice pharmacists in Scotland. The three practices which took part in the study had different demographics; one urban, one rural and one market town practice. The practices varied in size; by list size and number of GPs and they varied in their responsiveness to the CHP prescribing quality indicators. By sampling three different practices the transferability of these findings was improved. The researcher also sampled within cases by observing different aspects of the practice at different times. All GPs were observed in consultations, practice meetings were observed, the informal spaces such as the coffee room and reception were observed at various

times and days and the practice, specialist nurses and practice pharmacists were observed on various days in various roles to give a comprehensive overview of all aspects of prescribing from the perspective of different roles. The practice business meetings were not observed as the researcher became aware in the first practice the sensitivities of discussing finance. Prescribing issues could have been discussed at these meetings. However, it would have taken much more time and effort to gain access which may not have revealed any further information. The gatekeepers in each practice informed the researcher of any events or issues she missed when not at the practice. Therefore, the researcher is reasonably confident if there was a prescribing issue discussed at these meetings the gatekeepers would have informed the researcher.

The aim of the study was to explore 'what influences prescribing in primary care' but there are a huge number of factors at play. Researching more than one practice improved the potential transferability of the study. By sampling practices which performed well and poorly against prescribing quality indicators facilitated exploring variations in context, identifying different kinds of prescribing behaviour, processes and systems. Comparison of the practices allowed deeper analysis by opening the researcher to different perspectives and being able to identify similarities across the practices which performed well against the performance measures.

In conclusion, this study was unique in the approach and intensity of the research. The researcher spent time in the practices to build a relationship or at least a rapport with the practice staff. This allowed the researcher to get under the skin of three quite different practices and to be confident in her observations. The methods and the sampling strategy of this research aided achieving the study objectives and have been described in detail to allow the reader to assess the transferability of the findings.

### 8.3 Discussion of the findings

This PhD has found general practitioners engage with the evidence and decision-making at two levels within their practice; macro and micro and there are different prescribing decisions made in different contexts with different influences at play. This chapter will now discuss these different types of prescribing decisions in the light of the existing literature. Macro prescribing decisions are population based, grounded in science and based on EBM. Micro prescribing decision-making is with an individual patient and is less an exact science; patients are unique with different health problems, biology, perspectives and context. Micro prescribing can be 'trial and error' with many patients, especially those with complex co-morbidities. The macro/micro divide decision-making illustrates the 'science' versus 'art' nature of prescribing. The two different prescribing-decisions are discussed in turn.

#### *8.3.1 Macro prescribing*

There are two reasons 'why' macro prescribing is important to consider; in UK general practice the vast majority of GPs work in groups, they tend to be accessible to the practice population rather than work personal lists and sign repeat medication which has been authorised originally by a colleague, therefore prescribing has become a team based activity. Also, strategies such as guidelines and clinical governance focus on population based recommendations which are grounded in EBM. Therefore macro prescribing decision-making is more collective behaviour which requires co-ordinated action. Macro prescribing decisions are practice policy decisions and made by all key clinical staff in the high ranking practices. In the lower ranking group practice, the Haun, the practice organisation made collective decision-making by all GPs problematic.

Macro prescribing decisions are both influenced and shaped by the contextual influences, the practice organisation and communication channels. These are interconnected and influence

each other so the author needed to grasp each to understand the other. This discussion has attempted to write these as discrete sections to discuss how each is influenced and influences macro prescribing decision-making.

Initially engagement with the contextual influences will be discussed in light of Sheaff *et al.*'s, (2003) work on soft governance and then focus on the importance of organisation and communication for macro prescribing. By drawing on Weick's (2001) work on organisational sensemaking this study found the practice identity was instrumental in shaping their engagement with EBM and clinical governance and influenced the practice organisation and communication channels. These three constructs are pulled together under practice identity and macro prescribing decision-making is discussed in light of Weick's (2001) organisational sensemaking.

#### *8.3.1.1 Context*

General practices are independent businesses and therefore, cannot be manipulated by traditional command and control mechanisms. This study identified two main quality improvement channels which aimed to influence prescribing in primary care; evidence-based medicine and clinical governance. Findings showed all practices valued quality improvement and engaged with EBM at the macro prescribing level. However, implementation required practices to be organised and have effective processes and systems. Practices' engagement with CHP mechanisms was variable and guided by their values and practice identity. This section will discuss these contextual influences by drawing on Sheaff *et al.*'s (2003) work on soft governance to explain the practices engagement with EBM and the CHP quality improvement mechanisms.

#### *8.3.1.1.1 Evidence based medicine*

In the UK, evidence based medicine is at the core of the health system. The evidence based medicine movement produces a large amount of guidelines, with the aim of bringing clinicians activities more in line with the scientific evidence (Grol *et al.*, 1998). EBM is a strategy for quality improvement which aims to rationalise and standardise clinical decision-making in accordance with the evidence. Ferlie *et al.*, (2000) argue from an organisational behaviour perspective that the EBM model depends on clinical practice to be grounded in the data in a systematic and rational way, moving away from the more traditional approach based on tacit knowledge. Quality improvement strategies are advocating consistency and standardisation at the practice level based on EBM, shifting evaluation and management decisions away from the individual doctor (Harrison and Ahmad, 2000). Therefore, this study's finding of practice engagement with quality improvement and associated decision-making made at the macro prescribing level is in line with the existing literature. How practices engaged and valued EBM is discussed later on in this section.

#### *8.3.1.1.2 Clinical governance*

Clinical governance is "a framework through which NHS organisations are accountable for continually improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish" (Scully and Donaldson, 1998). In Scotland, health boards are responsible for the planning and delivery of services, one of which is primary health care services where the health boards provide these services through contracts with independent contractors (general practitioners). Health boards devolve some of this responsibility to CHPs, where they plan and provide services at a local level to suit local need. The CHPs are also responsible for various budgets, one of which is prescribing.

CHPs have a statutory responsibility for the quality of medical services through clinical governance, which includes the monitoring and implementing quality of care. Prescribing is a major concern as CHPs have responsibility to ensure patients have access to the most clinically and cost effective medicines, as they operate within a limited health budget they try to encourage rational and cost effective prescribing. They have the responsibility of endeavoring to influence the performance of general practices; this includes influencing poor quality and expensive prescribing (Britten, 2001).

There is a “long-established proposition that ‘science push’ is by itself a weak influence on behaviour” (Ferlie *et al.*, 2000; 100). As general practices are independent businesses CHPs cannot rely on traditional hierarchical command and control mechanisms (Grimshaw *et al.*, 2006). Instead the CHPs used a range of soft governance mechanisms (Sheaff *et al.*, 2003) to influence prescribing behaviour; practice pharmacists, education, a prescribing indicator report and the health board area wide prescribing formulary (the same mechanisms were used in each of the CHPs across the health board). Soft governance mechanisms are sophisticated management strategies designed to appeal to shared professional values (Sheaff *et al.*, 2003) as the CHP must work with GPs rather than against them. Soft governance is based on building relationships and rapport, demonstrating understanding and using persuasive arguments (based on EBM and prescribing data). This section will now discuss each of the CHP soft governance mechanisms in turn.

#### *8.3.1.1.3 CHP prescribing indicator report*

The CHP prescribing indicator report benchmarked practice against that of other local GP practices and was designed to generate competition between practices within the CHP (this is the same prescribing indicators and data that were used in this studies sampling frame, see section 3.3.3). The report published a number of both quality and cost indicators. The

indicators were not intended to be penalising but designed to feedback to practices and encourage them to explore their prescribing. Only Rubain accepted the relevance of these measures as the other practices argued they had atypical patient populations. The limitations of current practice level data and the associated cost and volume indicators are recognised. Audit Scotland (2003) has called for new measures that combine prescribing and diagnostic data and more accurately assess the appropriateness of prescribing.

The majority of the prescribing indicators were seen as cost efficiency rather than quality measures and seen to be changing frequently. Therefore, the GPs lacked motivation for these changes which also increased workload and inconvenience for patients. The CHP communicated a message of quality but the measure (prescribing indicator report) was primarily based on cost. NHS Tayside acknowledged the majority of their measures were primarily cost driven due to the health boards large over spend (personal communication, Lorna Scahill, Head of Medicines Management, NHS Tayside). This mechanism resulted in a unclear message from the CHP to the general practices. Prosser and Walley (2007; 21) illustrate this tension “although managers talked of quality, they measured success in terms of saving money.” Rubain engaged with these cost driven mechanisms because they saw cost-efficiency as part of their professionalism and they liked to be seen as ‘the best’, even in this domain.

#### *8.3.1.1.4 Formulary*

The health board produced a prescribing local area formulary of drugs which are approved on the basis of maximising effectiveness and minimising cost. This formulary is aimed at standardising prescribing. All three practices used the formulary and accepted the rationale behind it, so accepted the NHS has finite resources and prescribed ‘generic’ medication when appropriate and when in line with their views and values (with exceptions). The two high ranking practices accepted the formulary with exceptions; they adapted this formulary to suit

their values by creating an internal practice formulary. The other practice prescribed from the health board formulary, which was more extensive. In keeping with soft governance, these practices engaged with evidence and reflected on their values and modified the health board prescribing formulary accordingly. (This is discussed in more detail in the communication section).

#### *8.3.1.1.5 Practice pharmacists*

Practice pharmacists were employed by the CHP but worked within general practices. Their role was to rationalise and standardise prescribing and were given a wide remit in the way they operated to suit the practice culture. Being based in the practices allowed these pharmacists to build a relationship and rapport with the staff and gain an understanding of their values and practice identity. This study found practice pharmacists were conducive in leading prescribing quality improvement and interpreting prescribing data to identify areas for improvement. The practice pharmacist interpreted the practice level data in the context of the changing evidence and turned this data into information. Consistent data recording is required to be able to efficiently and effectively audit and identify areas for improvement and practice pharmacists were instrumental to the practices audit and feedback activities. All the practices valued the pharmacist's activities in audit and feedback. The feedback of audits resulted in changes at the micro, individual patient level, but changes at the macro level required audit data to be feedback to the majority prescribers face-to-face to facilitate discussion and inform collective decision-making. This could then inform new prescribing as well as changing old prescribing. However, for the practice pharmacists to have an effect at the macro prescribing level, practices had to be organised, with effective processes and systems, and communication channels in place and practitioners had to value the messages disseminated. (These issues are explored in more detail under the organisation and communication sections).



The larger practices were happy for the practice pharmacist to lead prescribing quality improvement and filter EBM into the practice by holding educational sessions summarising new evidence in light of the practice context and values. The GPs felt they did not have the time to individually engage with the evidence and valued the pharmacist resource in this activity. The GPs trusted what the pharmacist said and did not question the EBM sources but they did challenge some of the CHP cost-saving initiatives. The single-handed practice 'Rosnish' was unique in respect that the lead GP had organised the practice to allow him sufficient time to review EBM.

These findings correlate with the current literature where lack of time has been identified as a major barrier to clinicians engaging with EBM (Gabbay and le May, 2004), (McColl *et al.*, 1998b), (Davidoff *et al.*, 1995) and GPs lacking the skills to search and critically appraise the literature (McColl *et al.*, 1998b, Cranney and Walley, 1996). Gabbay and le May (2004) found GPs rarely use guidelines, when a new guideline is published GPs flick through it and if any changes to practice are required they discuss it with colleagues. Practice pharmacists are increasingly facilitating educational interventions, where they present data and research evidence to support changes in prescribing (Beney *et al.*, 2009, Watkins *et al.*, 2004, Nazareth *et al.*, 2002, Freemantle *et al.*, 2002). A systematic review of 85 trials found audit and feedback can improve professional practice (Jamtvedt *et al.*, 2006) but effectiveness varies and variation may be related to different methods or contextual factors (Grimshaw *et al.*, 2004). Hysong *et al.*, (2006) found if data is presented in a less punitive way it is less likely to be resisted and customising the data engages the individuals with the data and makes them an active participant in the sense-making process rather than a passive recipient. Thus, leadership is a core condition for quality improvement (Rushmer *et al.*, 2004).

Although GPs were happy to engage with the evidence, engaging practices in in-depth discussion and debate about changing practice and implementing these changes was dependent on their values. The practice's needed to recognise these were macro prescribing decisions and value consistency in their prescribing behaviour before the pharmacist could standardise and rationalise prescribing. Consistency requires organisation, processes and systems, without these in place it was difficult for the practice pharmacist to have any major impact. In the practice with a large number of part time staff, few practitioners were in attendance at the pharmacist led educational sessions and email summaries were not circulated so it is not clear how informed and engaged all practitioners were with the new evidence. This suggests a practice's organisational arrangements can be a barrier to educational sessions but also that this practice accepted these were difficult to arrange rather than trying to find ways to maximise opportunities. Without educational sessions the practice pharmacist was dependant on informal and opportunistic communication channels which were inefficient and ineffective at the macro level which led her to do micro level work instead.

These findings are in line with research around the organisation of care. Freemantle *et al.*, (2002) found organisational size a barrier to educational sessions. A systematic review of continuing educational meetings found educational meetings alone or combined with other interventions, can improve professional practice and healthcare outcomes for the patients but educational meetings alone are not likely to be effective for changing complex behaviours (Forsetlund *et al.*, 2009). Powell *et al.*, (2009; 66) argue "successful sustained quality improvement requires not merely changes in formal structures and visible processes...but in addition (and more importantly) profound changes in attitudes, beliefs and customs." Moss *et al.* (1998) argue for systems and the organisation of care for quality improvement strategies to have an effect. These last two points; the requirement for communication, discussion and debate and the requirement for processes and systems are addressed in the following sections.

This section has highlighted there are two main quality improvement strategies which have had limited effect as they rely on soft governance mechanisms due to the unique contractual status general practitioners enjoy. These mechanisms are designed to appeal to shared professional values. Practice pharmacists were an important resource in filtering CHP messages and new findings from the literature. Practice engagement with EBM and CHP mechanisms required macro prescribing decisions, which necessitate consistency in implementation. The CHP uses a number of mechanisms to influence these macro prescribing decisions but engagement was variable due to the limitations of current prescribing data and the mixed messages of quality and cost, so only the practice which viewed cost-savings as part of quality and ‘good practice’ engaged with the full range of mechanisms. Although, practice pharmacists led quality improvement and introduced evidence to practitioners, implementing change to good effect required practices to be organised with effective processes and systems in place and for GPs to value the changes.

This section has discussed the context and mechanisms which aim to influence general practices but general practices are organisations with unique structures and values which influence their engagement and uptake of EBM and clinical governance. The next sections will discuss the importance of organisational processes and communication channels.

#### *8.3.1.2 Organisation*

Much of the research around organisational systems views ‘the organisation’ as the whole health system, such as the NHS (Garfield *et al.*, 2009, Howard *et al.*, 2008), rather than seeing a general practice as an organisation. Checkland (2007) recommends viewing general practices as organisations as this gives insights into factors which influence change.

Prescribing quality improvement and rational prescribing require collective decisions and collective behaviour. To be able to engage in collective decision-making and behaviour, practices need to have co-ordinated practice organisation which is supported by considered processes and systems. Engagement with quality improvement requires practices too use information to improve the quality of care they provide. This requires practices to accurately and consistently record data so improvement can be measured. This study found implementing quality improvement and EBM requires practices to be systematic and organised; leadership was important for practice organisation and managing change; and IT systems provided an opportunity for macro prescribing policy to be implemented consistently across the practice team. Being organised created time and an opportunity for practices to forecast and plan for future changes. Due to the nature of prescribing data, quality improvement measures the practice prescribing behaviour rather than individual GP behaviour. Therefore, this section will argue macro prescribing decision-making and quality improvement needs to be supported by organisational processes and systems for consistent implementation of practice prescribing policy and the systematic identification of patients for review.

Quality improvement is about knowing what is going on in the practice and identifying areas for improvement. The CHP quality improvement mechanisms are based on PRISMS data, so to link these measures to diagnosis and find out if the prescribing was appropriate requires practice system data. Audit is the mechanism by which by practices can find out what is going on and identify clinical areas and patients for review of their medication. Accurate and effective auditing requires consistency in recording and tight audit definitions. Without these systems in place a number of patients could be missed. All three practices regularly engaged in audit and feedback. However, the Haun did not use tight audit definitions. Due to the lack of consistency in their prescribing and recording of data made it harder to run tighter searches.

Rubain and Rosnish valued knowing what was going on and audit provided the mechanism by which they could oversee their prescribing behaviour and identify patients for review.

Leadership was important for co-ordinated practice organisation and leading prescribing quality improvement. The next section will show how important the practice pharmacists were to leading prescribing quality improvement in the larger practices. Rubain and Rosnish both had a clinical lead who would oversee the clinical and organisational aspects of the practice, albeit with different leadership styles. Clinical leaders ensured issues were addressed, would drive change and be involved in co-ordinating the practice organisation. In Rosnish the lead GP was also the practice manager, whereas Rubain had invested heavily by employing two practice managers. Both practices valued organisation and control. In the Haun, due to the large number of part-time staff, (both clinical and administrative) the practice manager spent a considerable amount of her time organising reception, rotas and the day-to-day practice management. The practices which performed well against the prescribing indicators had more effective clinical and administrative leadership.

Systems can be effective for the systematic identification of patients for chronic disease management and medication review. Practices had two systems which were an important part of quality improvement; the IT system and their communication strategies (discussed in the next section). The IT system was important for monitoring and recall of patients in all three practices and also in Rubain to reinforce their practice formulary (high ranking practice with a number of prescribers) through the use 'hooks' on their IT system. This study found practices need to value these systems and invest time refining them in light of changes otherwise they did not support consistency in recording and auditing for effective quality improvement and accountability.

In summary, macro prescribing is a collective behaviour which requires co-ordination and to be supported with systems in place for quality improvement. Efficient and effective quality improvement requires accurate and consistent data, which requires co-ordination and communication across prescribers. Leadership was important for practice organisation and to drive and manage change.

These findings are aligned with the literature. A process evaluation of a RCT concluded EBM and in particular guidelines are not purely ‘medical’ they also involve organisational aspects so practices need to make organisational agreements as well as clinical decisions (Jansen *et al.*, 2007). Organisational performance and change is known to be influenced by the organisational characteristics (Spooner *et al.*, 2001, Davies and Nutley, 2000). Sustained quality improvement requires changes in structures and processes (Powell *et al.*, 2009), systems and organisation of care (Moss, 1998). Organisational change has to be internally led and a systematic review identified there was a need for organisational assessment tools to stimulate development (Rhydderch *et al.*, 2005).

A systematic review concluded audit and feedback can be effective in improving professional practice but the effects are small to moderate (Jamtvedt *et al.*, 2006). A review of the evidence on audit and feedback concluded they can be effective in changing behaviour but need the right organisational conditions and processes (Foy *et al.*, 2005). Delivering feedback in a timely and non-punitive way has been associated with higher quality care (Hysong *et al.*, 2006). Leadership is important for quality improvement (Lukas *et al.*, 2009, Rushmer *et al.*, 2004, Palmer *et al.*, 1996) and is associated with successful team engagement for quality improvement (Rubenstein *et al.*, 2002).

#### *8.3.1.3 Communication*

Macro prescribing decision-making is a team based activity, based on reviewing the scientific evidence and making population based decisions. Therefore practices need to collectively engage with new evidence to revise macro prescribing. This study found in practices with multiple GPs, face-to-face meetings with summarised research evidence engaged practitioners with the evidence and provided an opportunity to present CHP prescribing policy. However, practices needed to value collective decision-making and consistency in prescribing behaviour to engage in discussion and debate around reviewing macro prescribing and refining their associated systems. Where collective decision-making was valued all practitioners engaged in discussion and debate which gave ownership of their macro prescribing policy. In the practice which did not value macro prescribing the practitioners attended these meetings to maintain competence and to keep up-to-date with the evidence. This section will argue face-to-face communication channels are required to engage practitioners with EBM.

EBM is constantly being revised so practices need to keep up-to-date. Most practitioners felt they did not have sufficient time to keep up-to-date and to reflect on new evidence. Having practice meetings where summarised research evidence on a topic and the results of audits were fed back provided an opportunity for practitioners to allocate time to engage and reflect. As the meetings were face-to-face they presented an opportunity for practitioners to share values and experiences and collectively reflect before modifying prescribing policy. However, in the practice with a large number of part-time staff attendance at meetings was problematic so collective decision-making was difficult. In response this practice created a practice identity of valuing clinical autonomy.

In the context section it was shown practice pharmacists were well placed to lead prescribing quality improvement and run these face-to-face meetings. Tayside Health Board is unique in

its investment in practice pharmacists in comparison to other Scottish health boards so these findings may not be a transferrable model to another health board. Practitioners felt practice pharmacists had specialist skills (interpretation of evidence in the context of the practice population) which could be brought to the discussion. Data are fundamental to quality improvement and this study found the practice pharmacists had an important role in mediating between the prescribing data and the practice, where they interpreted the data and translated in the context of changing evidence. This has highlighted that quality improvement needs some form of leadership for interpretation and co-ordinated practice engagement. EBM is constantly being updated so practices need to collectively review and revise their macro prescribing accordingly and without leadership they can become stagnant. The practices had prescribing leadership which drove their quality improvement agenda and engagement with EBM but without valuing collective decision-making, macro prescribing decisions were not made.

These findings are consistent with the existing literature. The PRICCE project (Spooner *et al.*, 2001) found team working and ownership of decision-making management, which needs to be aligned with professional values, were important to engagement with quality improvement. They recommended a macro-management approach which leaves practitioners autonomy as to how to deliver care, rather than tight control of day-to-day processes. Good teamworking (Campbell *et al.*, 2001, Firth-Cozens, 2001) and effective communication channels are a key part of providing high quality care across a range of areas (Howard *et al.*, 2008, Flottorp *et al.*, 2003) but may need specific support if quality of care is to be improved (Campbell *et al.*, 2001). Lipman and Price (2000) found a specific educational meeting was more successful at changing practice than at a partners meeting with another agenda. In a practice that was motivated enough to employ a pharmaceutical adviser and had an explicit policy of reviewing its prescribing, the original decision was not well disseminated and only partially implemented (Lipman and Price, 2000). A randomised controlled trial of educational outreach visits found,



educational outreach alone was unlikely to achieve worthwhile change in larger practices, whereas there was good evidence to support the use of educational outreach visits in small practices (Freemantle *et al.*, 2002). Protected time and reflective practice are important conditions for practices to learn (Rushmer *et al.*, 2004). Walker and Mathers (2004) found in meeting together changes in prescribing occurred from the support of group policies and greater sense of group cohesion was the greatest benefit from practice meetings. Strong mechanisms and processes for transferring information and developing shared meanings for the negotiation of action are crucially important (Carlile, 2004, Carlile, 2002).

#### *8.3.1.4 Practice Identity*

The previous sections have shown general practices are independent businesses which cannot be controlled through traditional command and control mechanisms. EBM and CHP mechanisms try to influence practices through soft governance which aims to appeal to shared values. Practices engaged with CHP quality improvement mechanisms they valued but also needed effective systems and processes in place, in particular effective communication strategies for macro prescribing decisions. Practice values also guided their organisational structure and processes and shaped their practice identity. This section will discuss the practice identity in shaping practices engagement with quality improvement in terms of “Organisational Sensemaking” (Weick, 2001).

Other theories were explored to help explain the various influences upon practices and how they have an effect. Initially the audit culture (Power, 1997, Strathearn, 2000) was explored as quality improvement, EBM and CHP mechanisms define, measure and regulate professional work, however this was exploring the mechanisms rather than the practice values and organisation which shaped engagement with these mechanisms. The theory of planned behaviour (Ajzen, 1991) was excluded as this theory assumes that the ‘motivation’ or

‘intention’ to do something is the key determinant of behaviour and tends to focus on individuals rather than organisations. With current repeat prescribing systems this study was exploring collective rather than individual behaviour. The findings of this PhD were that all practitioners were motivated and engaged with EBM at the macro level, therefore this theory could not account for the differences between macro and micro prescribing.

From the previous sections it is clear to see general practices have multiple influences and operate in a complex context. “Sensemaking” is how organisations make sense of all these factors to organise themselves the way they do, through their values and identity. It is a retrospective activity which rationalises what people are doing. Sensemaking is about developing an identity context and through engagement with ongoing circumstances through which they extract cues and make sense retrospectively (Weick *et al.*, 2005). Every now and again practices stop and take stock of their circumstances and form this into words, and the identity ‘created’ then feeds into future behaviour. Reading, writing and conversing are *crucial actions* which shape conduct and practice identity (Gioia *et al.*, 1994). “Sensemaking is a process that is ongoing, instrumental, subtle, swift, social and easily taken for granted” (Weick *et al.*, 2005).

Sensemaking is rooted in identity; ‘what kind of practice are we?’ This study has shown each practice had an identity which was constructed from their values, circumstances and experiences. Macro prescribing decisions are strategic decisions which shape prescribing policy. EBM and CHP mechanisms were identified as the main contextual influences on macro prescribing and how practices responded was influenced by their practice identity. The two practices which performed well against the prescribing indicators had a practice identity of striving to be the best and saw prescribing as core to this. The practice which did not perform as

well had an identity of providing good care for patients but was laid back and but had business issues which they prioritised more at the time of this research.

Essential to sensemaking is effective communication (Huby *et al.*, 2008). The two practices which performed well against the prescribing measures engaged in regular face-to-face communication and had a strong practice identity. They recognised that responses to EBM and CHP soft governance mechanisms required macro prescribing decisions. They responded to the influences by reflecting on their knowledge, experience and values and engaging in collective decision-making about strategic macro prescribing policy. Although, the Haun had prescribing meetings they did not collectively reflect. In the case of new guidelines they accepted the recommendations and agreed to meet the bio-medical markers but did not discuss how this could be achieved. These face-to-face meetings were about sensemaking, ‘what do we value? What cues do we notice? How are we going to respond to these?’ so the prescribing meetings were invaluable to prescribing sensemaking. Sensemaking is an iterative process where practices extracted cues from their context; the action which is taken results in changes which play a part in determining which cues are noticed in the future. The Haun had not recognised that these guideline recommendations may require changes to macro prescribing or practice organisation, as they had not recognised or did not value macro prescribing.

Practice identity drove their organisation, especially their communication channels, but practice identity was also driven by their organisation characteristics (such as number of part-time staff). The practices with a strong prescribing identity had effective communication channels, tighter processes and systems and co-ordinated practice organisation. These practices believed being the best was achieved through being organised and having good, reliable and consistent data to be able to identify areas for improvement. They also valued continuity of care with patients and had developed practice systems to achieve optimal levels of continuity of care (discussed in

micro prescribing section). These practices had recognised the importance of the IT system for quality improvement and had invested time reflecting, modifying and improving their systems. The Haun had not recognised that organisation was also important to quality improvement. Due to the high number of part-time staff they had developed an organisational identity which saw themselves as modern and advocated clinical autonomy rather than collective decision-making or sensemaking.

The Haun's identity was reactive to their organisational structure. They were not aware they did not have a co-ordinated practice organisation or that lack of discussion and debate was not effective for sensemaking as they had not noticed these cues. Their identity as the modern, egalitarian practice was borne from a large number of part-time staff, reliance on IT for communication and a lack of leadership (which assists co-ordination). The other two practices were clear they wanted their identity and they regularly engaged in communication which reinforced their identity. As the Haun did not have co-ordinated practice organisation or collective face-to-face communication often their practice identity or policies were weak and prescribing sensemaking was difficult to achieve. Without effective communication and co-ordinated practice organisation there was little the practice pharmacist could do to lead their prescribing quality improvement.

This study has suggested practices need to be co-ordinated and have face-to-face meetings, or other as effective communication strategies in place to consider external influences and form a strong practice identity. The practices which performed well against the prescribing indicators had a strong identity based around their competitive prescribing behaviour. Practices without these mechanisms should think about their relationship to the various influences and construct an identity which helps them deal with these in a coherent and systematic way.

A practice identity is not something external influences can do anything about; it is about how practices respond to their values, circumstances and experience. What this PhD had suggested is that face-to-face communication is important for a macro prescribing policy but also for organisational sense-making.

This section has discussed the importance of practice identity for driving engagement in EBM and clinical governance. The next section will give an overview of micro prescribing and illustrate the barriers to implementing macro prescribing at the micro level.

#### *8.3.1.5 Macro prescribing summary*

In summary, macro prescribing is about practice prescribing policy, which involved population based decisions that require collective behaviour and co-ordinated action. All practices valued EBM and quality improvement however, implementation required organisation and effective processes and systems. Practices engagement with EBM and CHP mechanisms was variable and guided by their values and practice identity. Practice pharmacists were instrumental in leading prescribing quality improvement. They also had a key role in interpreting practice level data in the context of changing evidence and identifying areas for improvement. When the practice pharmacist informed GPs of changes to evidence and fed the results of audits back to the practice face-to-face this resulted in changes to new prescribing as well as changes to old prescribing. Practice prescribing meetings were an important communication channel for the pharmacist to engage with the practice and to filter new evidence and the results of audits into the practice. These prescribing meetings allowed the practices to share values, experience and modify their macro prescribing. This is an important part of sensemaking, where practices make sense of the multiple influences upon their prescribing through their values and practice identity.

### 8.3.2 *Micro prescribing*

Micro prescribing decisions were made in a consultation between the GP and the patient. These decisions required interpreting the evidence and macro prescribing policy using clinical judgement and experience, in light of a patient's preferences, values and circumstances. Macro decision-making was made with reference to the 'average patient' whereas individual patient circumstances will sometimes justify deviation from standard practice.

Recent literature on evidence based decision-making has recognised that evidence is not enough to inform decisions and clinicians must use their expertise to assess the patient's problem and must assimilate the evidence with the patient's preferences and values (Hurwitz, 1999, Haynes *et al.*, 2002). Sackett *et al* (1996) argue EBM is about using "...the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients...It requires a bottom up approach that integrates the best evidence with individual clinical expertise and patient's choice...External clinical evidence can inform, but can never replace, individual clinical expertise, and it is this expertise that decides whether external evidence applies to the individual patient at all and, if so, how it should be integrated into a clinical decision." Context and practitioner values also have an impact (Fairhurst and May, 2006). The health boards recognise these influences and are using 'soft governance' mechanisms to encourage practices to explore their prescribing. Therefore, there is a movement recognising the limitations to implementing macro prescribing policy at the micro level (Fairhurst and May, 2006, Gabbay and le May, 2004).

As the introduction to the discussion of these findings explained, there are different influences at play between macro and micro prescribing decisions. Macro prescribing decisions are population decisions considering the 'average' patient, based on research and consider one disease in isolation. Whereas, micro prescribing decisions are about applying EBM and macro

prescribing to the individual patient, and may involve considering more than one disease. Patients are unique, with their own views and preferences which should be considered and often present with problems which EBM cannot be applied to such as poly pharmacy and comorbidities.

The previous section illustrated the collective behaviour and co-ordinated nature of macro prescribing decision-making and the need for practice organisation, process and systems to support macro prescribing. This section will show how GPs assimilate information at the micro level, in particular with complex patients and how continuity of care was important for the implementation of macro prescribing policy at the micro level.

#### *8.3.2.1 Prescribing mindlines*

In the organisational learning literature it has been suggested that learning takes place in communities of practice (Wenger, 1998), and is supported by the findings of this PhD. A seminal paper by Gabbay and le May (2004) was a key piece of literature in shaping this PhD, however, the results of this study found the development of Gabbay and le May's (2004) mindlines to be most prominent at the micro prescribing level, particularly in the practice which did not engage well in collective prescribing decision making. In the practices with macro prescribing this policy was generally followed by all practitioners. However, complex patients with difficult prescribing decisions could challenge adherence to macro prescribing.

Gabbay and le May (2004) showed how clinicians rarely accessed and used explicit evidence from research. Clinicians use social networks to access information (Prosser *et al.*, 2003; McGettighan, 2003) from sources they trust such as colleagues to iteratively develop mindlines which were relied upon to make decisions. Gabbay and le May (2004; 3) define mindlines as “collectively reinforced, internalised tacit guidelines, which were informed by brief reading,

but mainly by their interactions with each other and with opinion leaders, patients and pharmaceutical representatives and by other sources of largely tacit knowledge that built on their early training and their own and their colleagues experience.”

Micro prescribing is not black and white, patient’s symptoms and circumstances may not ‘fit’ with the treatment recommendations, making it harder to stick to guidelines and the practice prescribing policy or formulary. This study found GPs used mindlines to aid their decision-making in cases of more complex prescribing.

This study found prescribing mindlines were iteratively developed from personal experience (experience gained from their medical training and from looking after patients), secondary care, and advice from the practice pharmacist and from conversations with colleagues. Drug representatives are likely to have had an influence but the extent was hard to gauge in this study. mindlines were also iteratively developed from the practice prescribing meetings (EBM and CHP policy) in Rubain. Each of these influences is now discussed in turn;

Mindlines were ‘personal formularies’ primarily developed from experience, their experience gained in medical training and from consulting with patients since qualifying. GPs regularly applied and tested their mindlines in consultation with patients and revised them by patient’s experiences of medication.

All GPs referred to consultants as an influence on their prescribing and in the practices with macro prescribing policy the strongest reason why they would deviate. GPs tended to follow recommendations from consultants; on occasion GPs would consult with the pharmacist before prescribing but generally followed the consultant’s recommendations. The pharmacist would provide information or they would read about the medication and learn through looking after



patients. GPs would also discuss secondary care recommendations with colleagues and seek advice. By following consultant's recommendations the GPs gained experience of medications and some of which would become part of their prescribing mindlines.

GPs would also converse and seek advice from their colleagues about their prescribing which was an important part of their iterative mindline development. They would seek advice from their practice pharmacist, who would search the literature and pharmaceutical information (Martindales and specialist websites) and make recommendations. However there was rarely a straight answer and trade-offs were involved. Clinicians would share their concerns with GP colleagues who would in turn share their experience and frequently gave advice. Discussing specific patients was a sensitive issue so GPs had these informal discussions with trusted others. In the middle sized and small practices, Rubain and Rosnish, all GPs were trusted. However, in the larger practice GPs tended to rely on certain colleagues. These interactions and information sharing resulted in the iterative development of mindlines. As discussions were not exclusive in the middle size practice these mindlines were collective and shared, whereas they were only shared among a trusted few in the large practice. The large number of part-time staff and the lack of face-to-face communication channels mitigated the collective sharing of stories and mindlines. Through regular communication and discussions, prescribers developed shared mindlines but retained a degree of individual interpretation based on their personal experience, values and preferences.

The practice prescribing meetings were an important way of filtering evidence into the practices. In Rubain where there was collective discussion around the new evidence and macro prescribing policy this became internalised. Through discussion with colleagues, in particular about applying the new evidence to individual patients was an important part of learning and this new evidence would eventually become part of their shared mindlines.

All practices had drug representatives visit the premises. Although, not all GPs conversed with the representatives, drug company sponsored materials were left in the coffee rooms and all GPs picked up the mugs, pens and post-it notepads. All but one GP claimed they had no influence but it was not clear if this was just rhetoric. It is likely drug representatives could have an influence on mindlines but they were not as strong an influence as experience and colleagues.

Iterative mindline development was an important part of sensemaking at the micro level. Through collective discussions these mindlines were shared and developed prescribing norms which have importance for consistent prescribing behaviour. This shows the gradual and accumulative nature of mindline development (Armstrong *et al.*, 1996, Jones *et al.*, 2001b). In Rubain and Rosnish these mindlines were a refinement of their macro prescribing policy and aided consistency in their prescribing behaviour through these mindlines being shared across all prescribers in each practice. However, in the Haun, the largest practice, which did not value consistency in prescribing behaviour, mindline development was between a few trusted individuals.

Most decisions to prescribe drugs are a combination of factors (Jones *et al.*, 2001b). Research evidence and written information is only one influence (Freeman and Sweeney, 2001, Prosser *et al.*, 2003) on the micro prescribing decision. Colleagues and opinion leaders are important social influences (Armstrong and Ogden, 2006, Prosser *et al.*, 2003), illustrating individual and organisational learning can take place at the same time (Elkjaer, 2004) but requires a well functioning team (Firth-Cozens, 2001). Experience shapes the way research evidence influences clinical practice (Ferlie *et al.*, 2000) at the micro prescribing level. All these factors contribute to the development of mindlines which ultimately influence prescribing decision-making (Barley *et al.*, 2008, Gabbay and le May, 2004) at the micro prescribing level.

This section has illustrated that although prescribers could not always adhere to macro prescribing policy in the two high ranking practices they commonly had developed shared mindlines across prescribers which maintained consistency through an informal formulary. Gabbay and le May's (2004) mindlines 'fit' with this data but only as part of a larger picture which includes macro prescribing. This point will be addressed again in the summary to this chapter, but first this research will now illustrate how important continuity of care was for the implementation of macro prescribing or shared mindlines at the micro level.

#### *8.3.2.2 Continuity of care*

Continuity of care primarily refers to how a patient's health care is linked over time. Continuity of care is an important part of modern medicine for elderly and complex patients (Kearley *et al.*, 2001, Schers *et al.*, 2002). Trust is a fundamental part of continuity and tends to arise between individuals rather than between systems (Checkland *et al.*, 2004) or practices. The nGMS contract has made relationship continuity harder to maintain (Windridge *et al.*, 2004). This section will discuss the importance of relationship continuity for consistency and standardised behaviour and for patient care, and the erosion of relationship continuity by the nGMS contract.

Relationship continuity builds trust between the patient and health professional over time. Through this relationship GPs are able to educate patients about their condition(s) for self-management. Consulting with the same GP also saves time as patients do not have to repeat their 'story' (Guthrie and Wyke, 2006) and GPs take responsibility for the long-term care of patients they have a relationship with (Guthrie *et al.*, 2008). Patient's value consulting a doctor they know well (Cheraghi-Sohi *et al.*, 2008) and feel more comfortable and find it easier to ask questions and be involved in the consultation and decision-making process (Guthrie and Wyke, 2006). This study found that relationship continuity enabled GPs to implement macro

prescribing policies. By having a relationship with patients GPs knew how to encourage patients towards their treatment recommendations. Many prescribing decisions are ‘trial and error’ and with relationship continuity GPs were able to encourage patients to try their suggestion first or the patient was happy to trust the GPs recommendations. This trust relationship was also important if GPs wanted to make changes to recommendations from secondary care (however, these were generally cost based switches). In the practice which did not engage in macro prescribing GPs generally proposed medication they personally knew well and were comfortable prescribing. This was also the practice with the lowest levels of continuity; the part-time GPs felt they offered continuity whereas the full-time GPs found the lack of continuity a source of frustration.

Freeman and Sweeney (2001) found GPs knew how to phrase their ‘sell’ of medication to the patient to ensure they were willing to take the drug of choice. Another study has shown that clinician’s recommendations may significantly influence the patient’s decision (Trewby *et al.*, 2002). So these two studies support the findings of this PhD. In contrast, Carlsen and Norheim’s (2005) study concluded GPs found it difficult to engage in rational prescribing at the micro prescribing level due to their relationship with patients and Checkland *et al.*, (2008) argue that claims to holism and continuity of care is rhetoric as GPs have moved smoothly into the biomedical requirements of the nGMS contract. There is little research on the effects of continuity of care on adhering to macro prescribing policy. Much of the literature focuses on GPs responding to patient demands to maintain the doctor-patient relationship (Little *et al.*, 2004, Dowell *et al.*, 2001, Butler *et al.*, 1998), rather than GPs using this trust to help implement prescribing policy.

The nGMS contract provides financial incentives for practices to achieve nationally set targets on speed of access, which reduces relationship continuity for those who want it. To be

financially remunerated practices must offer patients an appointment within 48 hours, which results in fewer appointments available for patients to book with their chosen practitioner in advance. There is some evidence that pressure to achieve targets reduces relationship continuity, and therefore leads to less appropriate care in the consultation for those with more complex problems (Windridge *et al.*, 2004). This study found all GPs valued continuity of care but the high ranking practices organised themselves to offer optimum levels of continuity of care. Multi-partnered practices can manipulate their appointment systems in sophisticated ways to maintain high levels of relationship continuity for those who value it. Current research has shown most patients value consulting a GP they know, particularly those who are older, sicker or attending more frequently (Kearley *et al.*, 2001, Schers *et al.*, 2002) or those with chronic or emotional problems (Guthrie and Wyke, 2006). This study found GPs were not keen to change medication for a patient who regularly consulted with another practitioner. However, due to the nGMS target this could have been the only appointment a patient could access. Therefore, in the practice without a system for continuity patients may need to visit the practice again to consult with their regular practitioner. Relationship continuity has been associated with higher levels of satisfaction for the patient (Guthrie *et al.*, 2000, Hjortdahl and Laerum, 1992) and for the professional (Fairhurst and May, 2006).

In summary, some patients justify deviating from macro prescribing policy, in particular elderly patients, patients with co-morbidities and those with complex needs. Clinicians used cognitively developed mindlines in these situations. These mindlines were developed from experience (medical training, years practicing as a GP and from patient's experience of medication) and from looking after patients on medication initiated in secondary care, patient specific advice from the practice pharmacist and conversations with colleagues. In the practices with macro prescribing policy, this and the discussions around their policy were an

important part of shared mindlines. Conversations with colleagues were important for the development of shared mindlines rather than personal mindlines.

Continuity of care also proved to be important at the micro prescribing level for implementing macro prescribing policy and/or shared mindlines. The trusting relationship between GP and patient provided opportunity for the GP to persuade the patient to try their drug of choice first.

#### *8.3.2.3 Micro prescribing summary*

Micro prescribing decisions are made in the consultation between the GP and patient. These decisions involve interpreting the evidence and macro prescribing in light of clinical judgment and experience and patient's preferences and values. Micro prescribing decisions had two strong influences; mindlines and continuity of care. GPs used prescribing mindlines, which are personal prescribing formularies, rather than explicit evidence to shape their prescribing decisions. These prescribing mindlines are iteratively developed through personal experience and information from social networks; secondary care, practice pharmacists, GP colleagues and interactions with patients. When there was collective discussion and sharing of information among the GPs in the practice these mindlines were shared. This shared mindline development was an important part of sensemaking at the micro prescribing level, where the GPs developed shared prescribing norms which was important for consistent prescribing behaviour.

Continuity of care refers to how health care is linked over time and is commonly referred to as having three parts; relationship, information and management. Relationship continuity of care enabled GPs to implement macro prescribing policies. By having a relationship with the patient GPs knew how to encourage patients towards their treatment recommendations. As many prescribing decisions are trial and error, GPs would try to persuade patients towards their treatment recommendation first. The nGMS contract potentially reduces relationship continuity

but this study has shown it is possible for practices to organise themselves to offer optimum levels of continuity of care to those patients who value it. GPs were not keen to change medication in a patient who usually consulted with another practitioner, so being able to offer relationship continuity was important for some patients.

#### 8.4 Chapter Summary

Prescribing decision-making is complex and takes place in two different contexts within general practice, at the macro, strategic prescribing level and the micro level, in consultation with patients.

CHPs use a range of soft governance mechanisms to influence GP prescribing and to rationalise and standardise prescribing based on EBM. All practices valued prescribing quality improvement and engaged with EBM at the macro prescribing level, however, this engagement was guided by their values and practice identity. Tayside health board had invested heavily in practice pharmacists, they were given a wide remit to be able to understand the practice culture and values and build relationships and rapport. The practice pharmacists led prescribing quality improvement in the larger practices and filtered EBM and CHP policy into the practices via prescribing meetings. The practice pharmacists had a key role in interpreting practice system level prescribing data in light of the changing evidence. The practices had to be organised with effective systems and communication channels and practitioners need to value the messages disseminated for the pharmacists to have an effect.

Prescribing quality improvement and macro prescribing require collective decisions and collective behaviour. Practices had to value consistency to be able to standardise and rationalise their prescribing. Consistency requires organisation and communication. Face-to-face communication and prescribing leadership was required to engage practitioners with

EBM. Prescribing meetings provided an opportunity for GPs to share values and experiences and collectively reflect before modifying their macro prescribing policy.

Sensemaking was how the practices made sense of all the influences and factors to organise themselves the way they do through their values and identity. How practices responded to EBM and CHP mechanisms was influenced by their practice identity. Face-to-face communication was essential for macro prescribing and for sensemaking. Prescribing meetings were an important part of collectively reflecting about prescribing and shaping a strong practice prescribing identity and guiding their future prescribing behaviour.

This study found sensemaking took place at two primary points however, sensemaking is ongoing, subtle and easily taken for granted (Weick *et al.*, 2005) so was likely to continually be ongoing in all their activities. Practices also engaged in sensemaking at the micro level during informal conversations, where they were iteratively developing prescribing mindlines.

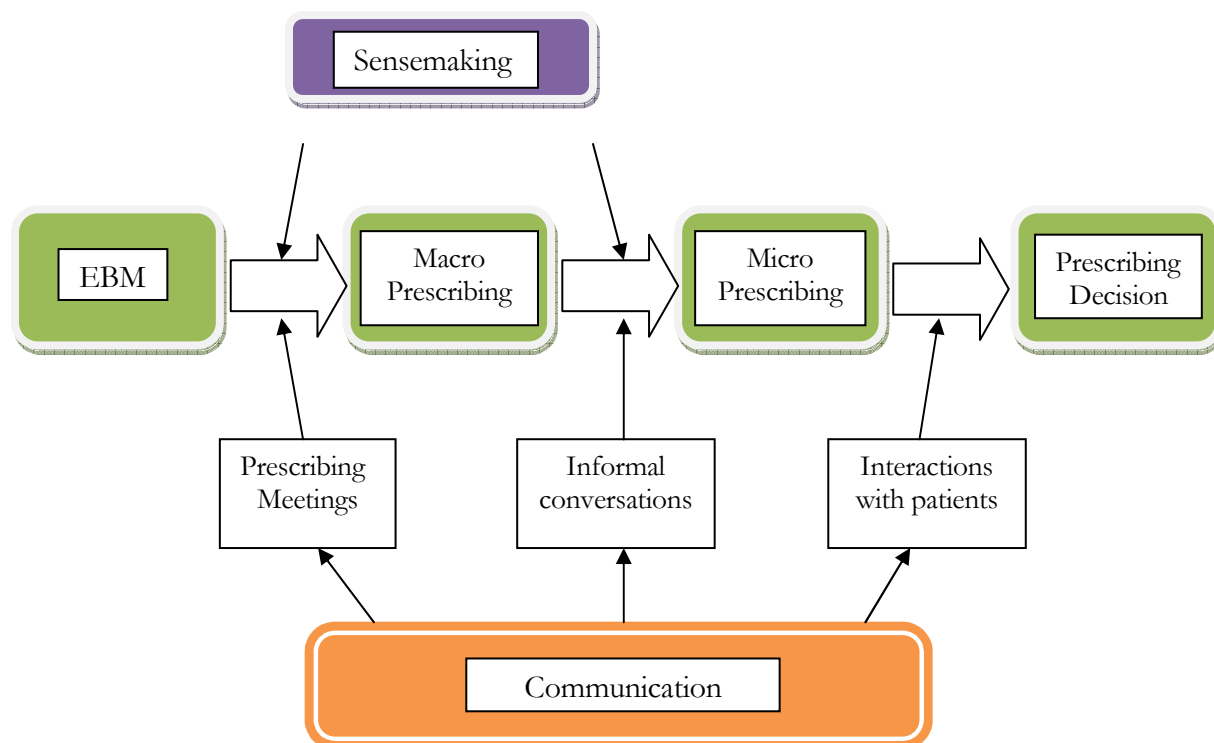
GPs used mindlines when making prescribing decisions at the micro prescribing level. GPs did not refer to explicit sources when seeking information but used personal prescribing formularies, termed prescribing mindlines. These mindlines were iteratively developed from social networks with colleagues, secondary care and patient specific information from the practice pharmacist and from past experience. Through effective communication with colleagues these mindlines were shared. A practices organisational arrangements and communication channels can mitigate the collective sharing of stories and thus mindlines.

The researcher felt the best way to succinctly summarise the findings of this study was in a model. The model below shows how evidence was filtered into the high performing practices,



illustrating the sensemaking ‘sites’ and the importance of communication for prescribing decision-making.

Figure 6: Model showing the filtering of evidence into prescribing decision-making



Continuity of care, in particular relationship continuity was important for prescribing at the micro prescribing level. Micro prescribing decisions are made in the consultation between the GP and patient and relationship continuity refers to a trusting relationship between a GP and patient. Relationship continuity of care facilitated the implementation of macro prescribing policy and prescribing mindlines as patients tended to trust the GPs recommendations. The nGMS contract has the potential to erode relationship continuity but this study has shown practices can organise themselves to offer optimum levels of relationship continuity for those who value it.

This shows there is complex and interdependent relationship between macro and micro prescribing decision-making. Both are dependent on effective communication channels, organisation, values and practice identity, illustrating the importance of social networks for prescribing behaviour. Macro prescribing policy provided a useful function for consistency in

care across practitioners within a practice however, adherence was not always appropriate so clinician's should relied on judgement and prescribing mindlines. When strong networks were in place these prescribing mindlines were shared.

## CONCLUSION

This study was concerned with understanding ‘what influences prescribing in general practice’. Previous chapters of this thesis have provided a detailed understanding of the influences at play on GP prescribing described in the literature, the methods used in this study, and described, compared and analysed the prescribing behaviour in three different practices. This PhD thesis has tried to provide a detailed understanding of GP prescribing behaviour.

The main aim of this study was to understand the influences at play on prescribing behaviour in primary care in an in-depth manner. By better understanding the influences GPs recognise and don’t recognise when making prescribing decisions, quality improvement initiatives can be designed to take account of this knowledge. Therefore, this chapter highlights and describes several implications and recommendations for future quality improvement work but also highlights some organisational issues practices may want to recognise. As well as making recommendations for prescribing quality improvement work, this chapter will also consider the implications of these findings for future research.

Initially this chapter will present the main findings from this study and followed by a discussion of the implications of these findings for future quality improvement work and further research. The final section will consider the transferability of these findings from this study in light of the study’s strengths and weaknesses.

### 9.1 Summary of the main findings from the study

To facilitate the reading of this chapter the author felt it would be useful to summarise the main findings of this study. A key finding was that prescribing decisions are made at two levels;

macro and micro. As the findings have already been presented and discussed, the findings under macro and micro prescribing decision-making are succinctly described in the table below to minimise repetition.

<b>KEY FINDING: Prescribing decisions are made at the macro and micro level.</b>
<p><b>MACRO prescribing decisions</b> – practice policy decisions made by all key clinical staff in the high ranking practices. These were collective prescribing decisions made considering the ‘average’ patient and one disease.</p> <p><b>MICRO prescribing decisions</b> – were made in a consultation between the GP and the patient. These decisions required interpreting the evidence using the clinician’s judgement and experience in light of the patient’s preferences and circumstances. Many of these decisions considered more than one disease.</p>
<b>MACRO PRESCRIBING DECISIONS</b>
<ul style="list-style-type: none"> <li>• All practices valued quality improvement and EBM and engaged at the macro prescribing level; however implementation was facilitated when practices were organised with effective processes and systems in place.</li> <li>• Practices engagement with CHP prescribing quality improvement mechanisms was variable and guided by their values and practice identity.</li> <li>• Creating an internal practice formulary allowed practices to retain a degree of clinical autonomy and be consistent in their prescribing behaviour.</li> <li>• Practice pharmacists were instrumental in leading prescribing quality improvement; they had a key role in interpreting practice level prescribing data in light of the evidence; and were instrumental in the practices audit and feedback activities.</li> </ul>

- Quality improvement strategies should be multi-faceted.
- Pharmacists had more of an effect at the macro prescribing level when practices were organised, with effective processes, systems, communication channels and valued the messages disseminated.
- In practices with multiple GPs, face-to-face meetings with summarised research evidence facilitated engaging practitioners with the evidence and provided an opportunity to present CHP prescribing policy.
- When practices valued collective decision-making and consistency in prescribing behaviour they engaged in discussion and debate around reviewing macro prescribing and refining their associated systems.
- Prescribing quality improvement is facilitated by some form of leadership for interpretation and co-ordinated practice engagement.
- Each practice had an identity which shaped their engagement with EBM and drove their organisation, especially their communication channels but was also driven by their organisational characteristics.
- Face-to-face communication is important for macro prescribing policy and organisational sensemaking.

## **MICRO PRESCRIBING DECISIONS**

- Prescribing mindlines were used to make prescribing decisions at the micro level.
- Prescribing mindlines were iteratively developed from personal experience (experience gained from their medical training and from looking after patients), secondary care and advice from the practice pharmacists and from conversations with colleagues.
- In the practice with full attendance and discussion and debate at their prescribing meetings their mindlines were also iteratively developed from the EBM, CHP policy and macro prescribing policy discussions.
- Regular face-to-face communication facilitated the sharing of mindlines which maintained consistency and an informal formulary.
- Multi-partnered practices can manipulate their appointment system to maintain high

levels of relationship continuity for those who value it and meet the nGMS access targets.

- GPs were not keen to change medication for a patient who consulted regularly with another practitioner.
- Relationship continuity enabled GPs to implement macro prescribing policies better.
- Limited research on the effects of relationship continuity of care on adhering to EBM and macro prescribing policy.

The main aim of this study was to holistically understand all the influences at play on prescribing within general practice. The aim was to better understand how GPs make prescribing decisions and make recommendations for further research. A detailed description, interpretation and comparison of the influences at play in three different practices have been given. Through the analysis and interpretation recommendations became clear to the author; however, as this research is based on a small number of practices the recommendations should be interpreted by the reader to the extent the findings are transferable to their context.

## 9.2 Recommendations for Future Quality Improvement Work

This study has illuminated that prescribing decisions are made at two levels with general practices. The evidence has suggested there are opportunities for future quality improvement work. These recommendations generally follow under this macro and micro prescribing divide; therefore the majority of the following recommendations are made under these headings:

### *9.2.1 Recognise both macro and micro prescribing decisions*

Recognising the practices made prescribing decisions at two different levels may help CHPs and other organisations that try and influence GP prescribing. Current, quality improvement strategies are advocating rational and standardisation at the practice level, moving decision-

making from the individual doctor (Harrison and Ahmad, 2000). Recognising there are two different kinds of prescribing decision suggests quality needs to be measured at the micro level as well as the macro level. An “assessment of whether the receipt of a particular health care intervention by a particular patient is appropriate should also be informed by awareness of that individual patient’s personal preferences” (Barratt, 2008; 408). However, patient variables are not typically represented in the evidence supporting clinical recommendations (Graham *et al.*, 2000). Assessing individual patient needs, values, priorities and contextual influences will be difficult but ignoring them is undermining the efforts of quality improvement at the macro level

### *9.2.2 Macro prescribing recommendations*

#### *Practices need to develop the capacity to be proactive*

CHPs use a range of soft governance mechanisms to engage practices with quality improvement. As practices are independent businesses the CHPs cannot use traditional command and control mechanisms so rely on appealing to values and using persuasion (Sheaff *et al.*, 2004). As a result practices engagement was guided by their practice values (Davies *et al.*, 2000) and practice identity. Practice identity and deep-seated values are something researchers, CHPs and other organisations can do little about. When values were aligned, practices engaged with EBM and the CHP mechanisms at the macro level but practice wide implementation was impeded by the practice’s organisation and communication strategies. This suggests practices need to better understand the implications of organisation and communication for their macro prescribing policy. In particular, these organisations need to develop a capacity to be proactive and to forward plan to be able to see key cues in the dynamic primary care context. For example, in the low ranking practice their narrative of being the modern practice, valuing clinical autonomy concealed the problems the practice had collectively engaging in decision-making. As this practice was reactive they had not organised themselves to allow time to reflect and plan. The other two practices in this study had



recognised the organisational benefits of the nGMS contract (Department of Health and NHS Confederation, 2003) before the contract came into existence and were doing much of this work already. The lower ranking practice had failed to notice the cues.

*Develop skills for interpreting practice system data in light of new evidence and CHP policy*

Practice pharmacists were conducive to prescribing quality improvement. They had an important role in the larger practices filtering EBM and CHP policy and mechanisms into the practices and interpreting the practice system data in light of this evidence and policies. Tayside health board invested heavily in practice pharmacists and at the time of writing this the UK was in a recession and funds were tight so the health board was considering reducing the number of pharmacists working in general practices. At the time of publication, the health board was looking for practice pharmacists to demonstrate the influence and impact they make within practices (personal communication, Jan Jones, pharmaceutical prescribing advisor). It is not clear from this study if the level of intervention NHS Tayside invested in practice pharmacists at the time of the fieldwork was needed. However, it was clear in this research all GPs valued and trusted their pharmacists. Without as much interaction and time spent in practices pharmacists may not be seen as part of the team and GPs may not trust the pharmacist's advice to the same extent. Opinion leadership and personal contact was found to be important for prescribing quality improvement (Prosser *et al.*, 2003).

*Quality improvement mechanisms should be multi-faceted*

It is recognised in the literature that there are 'no magic bullets' (Davis *et al.*, 1995) quality improvement should be multifaceted (Grol and Grimshaw, 2003, Grimshaw *et al.*, 2004, Haines and Jones, 1994) to appeal to as wide a range of practice values as possible. The findings of this PhD support these recommendations. The practices in this study engaged with

CHP mechanisms which were aligned with their practice values, therefore, CHPs should commission a wide range of quality improvement mechanisms.

*CHPs should provide practices with the tools to identify their own quality improvement needs*

Although, it has already been stated deep-seated practice values and identity is something researchers, CHPs and other organisations can do little about, practice pharmacists in Tayside were in a unique position. As part of the practice team, the practice pharmacists were aware of the practice culture and values, they knew how to ‘pitch’ their communication with individual practitioners and with the practice as a group. Practices responded to the CHP mechanisms which were aligned with their values and practice identity. Rather than imposing externally developed measures, practice pharmacists are well placed to identify individual practice needs and enable practices to become proactive. The CHPs could provide practice pharmacists with the tools to identify and evaluate their own practice quality improvement needs rather than these being externally imposed. It is not about imposed change but providing practices with the knowledge, foresight to see and recognise these changes and be motivated to do these changes themselves.

*Consider prescribing leadership*

Practices need prescribing leadership to filter evidence into the practices and drive their quality improvement agenda. GPs did not actively go looking for evidence but were happy to receive it and actively engage (Prosser and Walley, 2003, McGettigan *et al.*, 2001). If the health board are to reduce or withdraw practice pharmacists, without prescribing leadership practices should consider developing the capability to regularly filter new evidence into the practices and to interpret the practices system data in light of this evidence. This would require training as the interpretation and processing of primary care data is a complex task (de Lusignan *et al.*, 2006). Practices should consider to putting forward a GP and an administrative member of staff. A GP

could be trained to interpret the data but the work of running searches and collating the information from various sources within the practice system could be carried out by the practice manager or another member of staff.

#### *Recognise the importance of practice organisation*

The recognition of the importance of practice co-ordination, process and systems (Garfield *et al.*, 2009) for prescribing quality improvement may help motivate practices to modify their organisational structure. Setting a prescribing formulary and macro prescribing policy allowed the practices to retain a degree of clinical autonomy and be consistent in their prescribing behaviour (Avery *et al.*, 1997, de Bakker *et al.*, 2007). There is potential to use the practice IT system to remind GPs of the formulary to ensure a practice standard of prescribing is delivered consistently across all practitioners (Barber, 2004). It is not always possible to implement macro prescribing policy so when practitioners deviate they should record in the patient's notes the reason(s) why. So when relationship continuity of care is not present another GP can more easily interpret the GPs thought process. An aim of EBM is to reduced variation within the NHS but complying with macro prescribing policy and practice formulary can facilitate less variation between prescribers within the practice.

The nGMS contract provides financial incentives for practices to achieve targets on speed of access of appointments for a consultation (Department of Health and NHS Confederation, 2003). Practices are encouraged to offer patients an appointment within 48 hours which has resulted in relationship continuity of care being harder to maintain (Windridge *et al.*, 2004). The results of this study have shown practices can organise themselves to offer optimum levels of relationship continuity to those patients who value it. All practitioners valued continuity of care, feeling they provided a better service but also gained job satisfaction with relationship

continuity (Fairhurst and May, 2006). Therefore this study recommends practices consider how they can best offer and organise for optimum levels of continuity.

#### *Recognise the importance of communication*

This study found face-to-face communication facilitated both macro and micro prescribing decisions therefore the author recommends practices should organise for both formal and informal communication (Carter *et al.*, 2009). The educational sessions provided protected time for practices to collectively engage with new EBM and reflect (Watkins *et al.*, 2004, Lipman and Price, 2000). By recognising the value of macro prescribing policy practices can engage in discussion, debate and collective decision-making. Being involved in the discussions gave ownership of the macro prescribing policy. Therefore, this study recommends educational prescribing meetings; with clinical prescribing leadership (practice pharmacist or GP) to run formal education meetings where they interpret the practice system prescribing data and translate this into practice specific information in context of the changing evidence. As EBM is constantly changing, practices should consider regularly scheduling these meetings. These formal practice educational meetings should take place on the same day at the same time to ensure all practitioners know when the meetings are taking place. Attendance at these prescribing meetings can facilitate new evidence becoming part of the GPs prescribing mindline development, so practices should consider organising themselves to ensure all GPs work on a certain morning or afternoon to ensure attendance.

Face-to-face communication formally and informally provided practitioners with the opportunity to share values, experiences and iteratively develop their prescribing mindlines (Gabbay and le May, 2004). Practices should recognise the benefits of face-to-face communication (Lipman and Price, 2000, Howard *et al.*, 2008, Firth-Cozens, 2001, Campbell *et al.*, 2001). Face-to-face communication in an informal setting helped built relationships,

trust and reciprocity. Communication facilitated the development shared meanings (Carlile, 2004, Carlile, 2002). In the practice with a large number of part-time staff and lack of face-to-face communication channels mitigated the collective sharing of stories and mindlines. In the practices with more face-to-face communication trusting relationships seemed to be present across all practitioners and as a result prescribing mindlines were collective and shared which helped maintain consistency and informal formulary.

Communication facilitated on-going and continuous change in practices systems and processes. Through the formal and informal communication channels practitioners discussed the practice systems which raised issues, ideas and suggestions for refinement.

#### *Consider leadership*

This study identified three different kinds of leadership within the practices; clinical, prescribing and administrative. Prescribing leadership is discussed above. The two high ranking practices had a form of clinical leadership; one practice showed this did not need to be formal and authoritarian but ensuring progress is being made and issues have not become stagnant. This study is not recommending clinical leadership but suggesting practices consider this as an option if change is proving difficult. Leadership has been shown to be important for quality improvement (Lukas *et al.*, 2009, Rushmer *et al.*, 2004, Palmer *et al.*, 1996). GPs are the business owners and as employees of the GPs the practice managers are limited in their ability to lead the clinical aspects.

#### *9.2.3 Micro Prescribing recommendations*

This study found GPs use prescribing mindlines (Gabbay and le May, 2004) to make decisions at the micro level. As these were iteratively developed from experience (medical training and from consulting with patients) (Wathen and Dean, 2004, Armstrong and Ogden, 2006),

secondary care (Armstrong and Ogden, 2006, Prosser and Walley, 2003), advice from the pharmacist and from interactions with colleagues (Prosser *et al.*, 2003, Armstrong and Ogden, 2006), which shows the influence of networks on GP prescribing behaviour (Fairhurst and Huby, 1998) and the gradual accumulation of knowledge (Jones *et al.*, 2001b, Armstrong *et al.*, 1996). Recommendations around interactions with colleagues are given above in the communication section; however an important point is to try and facilitate EBM becoming an influence on GP iterative development of mindlines.

#### *Secondary care*

This PhD showed secondary care as a influence over GP prescribing (Armstrong and Ogden, 2006, Prosser and Walley, 2003, Jacoby *et al.*, 2003, Feely *et al.*, 1999, Avery *et al.*, 1997). Secondary care was the most common reason the practitioners would deviate from macro prescribing policy but was also where GPs would learn about new medications. As GPs trust the consultant's advice shows the importance of EBM and prescribing quality improvement within the secondary care setting. Thus it is important to target quality improvement at secondary care as changes made in prescribing at this level will eventually filter through to primary care.

#### *Medical training*

A GPs medical training was part of their experience and mindline development. Medical education should consider making future doctors aware of the two different prescribing decisions at the macro and micro level and the importance of communication with colleagues. When teaching EBM students should be made aware of the advantages and disadvantages of using social 'networks' to learn.

#### *Advice from practice pharmacist*

The practice pharmacists were in a position of trust where all the GPs valued and trusted their advice. Practice pharmacists had an important role at micro level providing patient specific advice. In elderly or complex patients with co-morbidities practice pharmacists were able to advise on complex prescribing, particularly with interactions. This knowledge and advice was a source of information for iterative mindline development. The effects of this were hard to gauge. As mentioned above NHS Tayside was questioning their level of investment in practice pharmacists, suggesting the practice pharmacists may not be around the practices as much. This implies practice pharmacists will be not able to give as much patient specific advice face-to-face and contribute to the 'coffee room' discussions but from the accounts given by GPs it is important for the GPs to have email contact with a pharmacist they trust to ensure this source of advice is still available.

#### *Limited research on the effects of continuity of care on treatment decisions*

Relationship continuity of care allowed GPs to use their trusting relationship with patients to help implement the practice prescribing policy. There is limited research on the effects of relationship continuity for adhering to EBM and macro prescribing policy. However (Dowell *et al.*, 1996) showed patients are willing to try new treatments when they know it was suggested on the basis of cost due to the power of the doctor-patient relationship. Clinicians have been shown to use their knowledge of the patient to affect a successful outcome (Freeman and Sweeney, 2001, Fairhurst and May, 2006). However, it has been shown clinician's recommendations influence patient's decisions (Greenfield *et al.*, 2005, Trewby *et al.*, 2002). Further research is required on the effect of continuity of care for implementing EBM and macro prescribing policy.

### 9.3 Recommendations for Further Research

This was a qualitative research project conducted in a small number of research sites therefore, these findings are useful to give a deeper understanding of prescribing behaviour and make suggestions for future research. A number of recommendations for further research are given below:

As this study was only conducted in three general practices within one health board in Scotland these findings should be tested and refined in a larger number of settings with a larger number of variables between the practices, such as quality ranking and number of part-time partners.

Further research is required into the effects of networks and social capital within general practices and primary care organisations. The results of this study suggest GPs learn through social ‘networks’. This implies an opportunity for quality improvement efforts to focus on ‘protected learning time’ and other face-to-face ‘continuous professional development’ events.

Weick’s (2001) organisational sensemaking was a useful model to help illuminate how the practice identity impacted on their macro prescribing behaviour. Gabbay and le May’s (2004) work on mindlines was a useful model at helping explain how GPs cognitively manage all the influences at play at the micro prescribing level and constantly develop this learning. Shared ‘mindline’ development is another form of organisational sensemaking at the micro level. Exploring prescribing mindlines suggests there are other types of mindlines present in primary care, the author suggests further work could be carried out exploring collective sensemaking within primary care. Further work is required exploring the processes of collective sensemaking to better understand how research becomes internalised.



Current quality improvement efforts focus on EBM and standardising prescribing behaviour at the macro level, however, quality improvement has been underdeveloped at the micro prescribing level. Further exploratory research should focus on exploring measuring patient and practitioner level variables at the micro prescribing level.

Further research is required to explore the impact of the nGMS contract on continuity of care and also to explore the impact of continuity of care for macro prescribing and governance.

#### 9.4 Study Strengths and Limitations

The main aim of this study was to holistically understand all the influences at play on prescribing within general practice. The aim was to better understand how GPs make prescribing decisions rather than to assess and measure the impact of each of these influences. The intention was never to quantify the influences but rather to give a deeper understanding to the influences on GP prescribing.

The strength of this research lies in the concepts of macro and micro prescribing. This study found that GPs make two different kinds of prescribing decision and there were different influences on the different types of prescribing decision. These findings generate a number of hypotheses which can be tested in a larger number of practices or by quantitative methods.

Three theories were used to help the researcher understand the influences upon prescribing and practice's reactions to these influences; Sheaff *et al* (2003, 2004), Weick (2001, 2005), Gabbay and le May (2004). Sheaff *et al* (2003, 2004) and Weick's (2001, 2005) work was used give greater explanatory power, although Gabbay and le May's (2004) work was also used for this purpose the researcher was able to transfer their model of knowledge management to

prescribing behaviour. This allowed the researcher to apply and develop Gabbay and le May's work in an area which has previously been unexplored by the model.

Ethnographic work is often carried out in one location. Strength of this research was the three different general practices studied. The researcher was able to do a comparison across the practices. The deviant case provided the most useful comparison and illuminated some important findings.

A further strength of this study was the length of time spent observing in each of the three practices. The researcher was able to extensively explore each practice's prescribing behaviour, culture and organisational structure. The extended period of time also allowed the researcher to build relationships or rapport with prescribers gaining an insight into their personal views and preferences.

Although the researcher spent an extended period of time in each practice and contact was maintained with the gatekeepers for a year after observation, this research is still a snap-shot of the influences at play in three different practices at a given period of time. Therefore, this study did not capture changes over time. In an ideal world longitudinal observation over a number of years would show the dynamic and shifting of prescribing behaviours, beliefs and patterns.

The GPs were aware they were being observed and taking part in research. This may have affected their behaviour although this would have been difficult to maintain considering the length of the period of observation.

All the practices which took part in this study agreed to take part when approached and all had a relationship with the Tayside Centre for General Practice. It is possible practices that not have a relationship with the academic department could be different in some way.

This study did not explore the patient perspective, patient involvement or patient autonomy. Patient's views and reactions in consultation were observed however as the researcher did not speak or interview patients, this data was the researcher's interpretation of their perspective.

The findings of this research are from a small number of practices in one Scottish health board area. Due to the limited sample size it is likely this study does not represent the full range of views and influences that exist. The GPs and the practices may not be representative of GPs generally. The practices which took part in this study were ranked by prescribing quality indicators. These indicators do not represent the full range of characteristics GPs may attribute with quality prescribing or being a good practitioner.

## 9.5 Conclusion

Previous research has focused on specific aspects or influences on prescribing; however, little in-depth research has been carried out focusing on all aspects of prescribing in a holistic manner. This research study sought to fill this gap. Participant observation was conducted in three different general practices over an extended period of time, which provided a detailed description and understanding of the three practices and their prescribing processes and influences. Semi-structured interviews with key members of staff in each practice allowed the researcher to further explore the respondent's views and values, and test and validate some of the research findings. The data from both these research methods has provided a thick description and comparison of three disparate general practices. The analysis has answered the original research questions and objectives of this study.

In conclusion, this PhD has provided a rich description and understanding of general practitioners prescribing decision-making; the influences which impact on these and an

understanding of how these influences are processed by practitioners into two types of prescribing decision; macro and micro.

## References

- AJZEN, I. 1991. The theory of planned behaviour. *Organizational Behaviour and Human Decision Process*, 50, 179 - 211.
- ALLEN, M., FERRIER, S., O'CONNOR, N. & FLEMING, I. 2007. Family physicians' perceptions of academic detailing: a quantitative and qualitative study. *BMC Medical Education*, 7, 36.
- ARMSTRONG, D. 2002. Clinical autonomy, individual and collective: the problem of changing doctors' behaviour. *Social Science Medicine*, 55, 1771-7.
- ARMSTRONG, D. & OGDEN, J. 2006. The role of etiquette and experimentation in explaining how doctors change behaviour: a qualitative study. *Sociology of Health & Illness*, 28, 951-68.
- ARMSTRONG, D., REYBURN, H. & JONES, R. 1996. A study of general practitioners' reasons for changing their prescribing behaviour. *British Medical Journal*, 312, 949-952.
- AUDIT COMMISSION 1994. A prescription for improvement: towards more rational prescribing in general practice. London: Her Majesty's Stationary Office.
- AUDIT SCOTLAND 2003. Supporting prescribing in general practice - a progress report. Auditor General for Scotland.
- AVERY, A., HERON, T., LLOYD, D., HARRIS, C. M. & ROBERTS, D. 1998. Investigating relationships between a range of potential indicators of general practice prescribing: an observational study. *Journal of Clinical Pharmacy & Therapeutics*, 23, 441-450.
- AVERY, A., WALKER, B., HERON, T. & TEASDALE, S. 1997. Do prescribing formularies help GPs prescribe from a narrower range of drugs? A controlled trial of the introduction of prescribing formularies for NSAIDs. *British Journal of General Practice*, 47, 810-814.
- AVERY, A. J., RODGERS, S., HERON, T., CROMBIE, R., WHYNES, D., PRINGLE, M., BAINES, D. & PETCHEY, R. 2000. A prescription for improvement? An observational study to identify how general practices vary in their growth in prescribing costs. *British Medical Journal*, 321, 276.
- AVERY, A. J., SAVELYICH, B. S., SHEIKH, A., MORRIS, C. J., BOWLER, I. & TEASDALE, S. 2007. Improving general practice computer systems for patient safety: qualitative study of key stakeholders. *Quality and Safety in Health Care*, 16, 28-33.
- AVERY, A. J., SHEIKH, A., HURWITZ, B., SMEATON, L., CHEN, Y. F., HOWARD, R., CANTRILL, J. A. & ROYAL, S. 2002. Safer medicines management in primary care. *British Journal of General Practice*, 52, S17-S22.

- AVORN, J. & SOUMERAI, S. B. 1983. Improving drug-therapy decisions through educational outreach. A randomized controlled trial of academically based "detailing". *New England Journal of Medicine*, 308, 1457-63.
- BARBER, N. 1995. What constitutes good prescribing? *British Medical Journal*, 310, 923-5.
- BARBER, N. 2004. Designing information technology to support prescribing decision making. *Quality and Safety in Health Care*, 13, 450-4.
- BARBER, N., RAWLINS, M. & DEAN FRANKLIN, B. 2003. Reducing prescribing error: competence, control, and culture. *Quality & Safety in Health Care*, 12 Suppl 1, i29-32.
- BARLEY, M., POPE, C., CHILVERS, R., SIPOS, A. & HARRISON, G. 2008. Guidelines or mindlines? A qualitative study exploring what knowledge informs psychiatrists decisions about antipsychotic prescribing. *Journal of Mental Health*, 17, 9-17.
- BARRATT, A. 2008. Evidence Based Medicine and Shared Decision Making: The challenge of getting both evidence and preferences into health care. *Patient Education and Counseling*, 73, 407-412.
- BATEMAN, D. N., ECCLES, M., CAMPBELL, M., SOUTTER, J., ROBERTS, S. J. & SMITH, J. M. 1996. Setting standards of prescribing performance in primary care: use of a consensus group of general practitioners and application of standards to practices in the north of England. *British Journal of General Practice*, 46, 20-25.
- BENEY, J., BERO, L. & BOND, C. M. 2009. Expanding the roles of outpatient pharmacists: effects on health services utilisation, costs, and patient outcomes. *Cochrane Database of Systematic Reviews*, 4.
- BERG, M. 1997. Problems and Promises of the Protocol. *Social Science & Medicine*, 44, 1081 - 1088.
- BERINGS, D., BLONDEEL, L. & HABRAKEN, H. 1994. The effect of industry-independent drug information on the prescribing of benzodiazepines in general practice. *European Journal of Clinical Pharmacology*, 46, 501-505.
- BERO, L., GRILLI, R., GRIMSHAW, J., HARVEY, E., OXMAN, A. & THOMSON, M. 1998. Closing the gap between research and practice: an overview of systematic reviews of interventions to promote the implementation of research findings. The Cochrane Effective Practice and Organization of Care Review Group. *British Medical Journal*, 317, 465 - 468.
- BERTONI, A. G., BONDS, D. E., CHEN, H., HOGAN, P., CRAGO, L., ROSENBERGER, E., BARHAM, A. H., CLINCH, C. R. & GOFF, D. C., JR. 2009. Impact of a multifaceted intervention on cholesterol management in primary care practices: guideline adherence for heart health randomized trial. *Archives of Internal Medicine*, 169, 678-86.

- BLOOR, K. & MAYNARD, A. 1996. Is there scope for improving the cost-effective prescribing of nonsteroidal anti-inflammatory drugs? *Pharmacoeconomics*, 9, 484-96.
- BRADLEY, C. P. 1991. Decision making and prescribing patterns - A literature review. *Family Practice*, 8, 276-287.
- BRADLEY, C. P. 1992a. Factors which influence the decision whether or not to prescribe: The dilemma facing general practitioners. *British Journal of General Practice*, 42, 454-458.
- BRADLEY, C. P. 1992b. Uncomfortable prescribing decisions: a critical incident study. *British Medical Journal*, 304, 294-6.
- BRADLEY, C. P. 2002. Insights from qualitative research are needed to improve GP prescribing. *European Journal of General Practice*, 8, 3-4.
- BREWER, J. D. 2000. *Ethnography*, Buckingham, Open University Press.
- BRITTEN, N. 2001. Prescribing and the defense of clinical autonomy. *Sociology of Health & Illness*, 23, 478-496.
- BRITTEN, N., STEVENSON, F., GAFARANGA, J., BARRY, C. & BRADLEY, C. 2004. The expression of aversion to medicines in general practice consultations. *Social Science & Medicine*, 59, 1495-1503.
- BRITTEN, N., STEVENSON, F. A., BARRY, C. A., BARBER, N. & BRADLEY, C. P. 2000. Misunderstandings in prescribing decisions in general practice: Qualitative study. *British Medical Journal*, 320, 484-488.
- BRITTEN, N. & UKOUMUNNE, O. 1997. The influence of patients' hopes of receiving a prescription on doctors' perceptions and the decision to prescribe: a questionnaire survey.[see comment]. *British Medical Journal*, 315, 1506-10.
- BRYMAN, A. 2004. *Social Research Methods*, Oxford, Oxford University Press.
- BUTLER, C. C., ROLLNICK, S., PILL, R., MAGGS-RAPPORT, F. & STOTT, N. 1998. Understanding the culture of prescribing: Qualitative study of general practitioners' and patients' perceptions of antibiotics for sore throats. *British Medical Journal*, 317, 637-642.
- CAMERON, C. 1996. Patient compliance: recognition of factors involved and suggestions for promoting compliance with therapeutic regimens. *Journal of Advanced Nursing*, 24, 244-250.
- CAMPBELL, S., HANN, M., HACKER, J., BURNS, C., OLIVER, D., THAPAR, A., MEAD, N., GELB SAFRAN, D. & ROLAND, M. 2001. Identifying predictors of high quality care in English general practice: observational study. *British Medical Journal*, 323, 784 - 790.
- CAMPBELL, S., ROLAND, M., SHEKELLE, P., CANTRILL, J., BUETOW, S. & CRAGG, D. 1999. Development of review criteria for assessing the quality of management of stable

- angina, adult asthma, and non-insulin dependent diabetes mellitus in, general practice. *Quality and Safety in Health Care*, 8, 6 - 15.
- CAMPBELL, S. M., CANTRILL, J. A. & ROBERTS, D. 2000. Prescribing indicators for UK general practice: Delphi consultation study. *BMJ*, 321, 425-428.
- CANTRILL, J. A. 2000. Measuring the appropriateness of long-term prescribing in United Kingdom general practice - Is the British National Formulary the 'gold standard'? *Journal of Clinical Pharmacy & Therapeutics*, 25, 341-346.
- CANTRILL, J. A., DOWELL, J. & ROLAND, M. 2000. Qualitative insights into general practitioners' views on the appropriateness of their long-term prescribing. *International Journal of Pharmacy Practice*, 8, 20-26.
- CARLILE, P. R. 2002. A pragmatic view of knowledge and boundaries: boundary objects in new product development. *Organisational Science*, 13, 442-455.
- CARLILE, P. R. 2004. Transferring, translating and transforming: An integrative framework for managing knowledge across boundaries. *Organisational Science*, 15, 555-568.
- CARLSEN, B. & NORHEIM, O. F. 2005. "Saying no is no easy matter" a qualitative study of competing concerns in rationing decisions in general practice. *BMC Health Services Research*, 5, 70.
- CARTER, B. L., ROGERS, M., DALY, J., ZHENG, S. & JAMES, P. A. 2009. The potency of team-based care interventions for hypertension: a meta-analysis. *Archives of Internal Medicine*, 169, 1748-55.
- CARTHY, P., HARVEY, I., BRAWN, R. & WATKINS, C. 2000. A study of factors associated with cost and variation in prescribing among GPs. *Family Practice*, 17, 36-41.
- CAUDILL, T. S., JOHNSON, M. S., RICH, E. C. & MCKINNEY, W. P. 1996. Physicians, Pharmaceutical Sales Representatives, and the Cost of Prescribing. *Archives of Family Medicine*, 5, 201-206.
- CHARLES, C., GAFNI, A. & WHELAN, T. 1997. Shared decision-making in the medical encounter: what does it mean? (or it takes at least two to tango). *Social Science & Medicine*, 44, 681 - 92.
- CHARMAZ, K. 2006. *Constructing Grounded Theory: A Practice Guide Through Qualitative Analysis*, London, Sage Publications Ltd.
- CHECKLAND, K. 2007. Understanding general practice: a conceptual framework developed from case studies in the UK NHS. *British Journal of General Practice*, 57, 56-63.



- CHECKLAND, K., HARRISON, S., MCDONALD, R., GRANT, S., CAMPBELL, S. & GUTHRIE, B. 2008. Biomedicine, holism and general medical practice: responses to the 2004 General Practitioner contract. *Sociology of Health & Illness*, 30, 788-803.
- CHECKLAND, K., MARSHALL, M. & HARRISON, S. 2004. Re-thinking accountability: trust versus confidence in medical practice. *Quality Safety in Health Care*, 13, 130-5.
- CHERAGHI-SOHI, S., HOLE, A. R., MEAD, N., MCDONALD, R., WHALLEY, D., BOWER, P. & ROLAND, M. 2008. What patients want from primary care consultations: a discrete choice experiment to identify patients' priorities. *Annals Family Medicine*, 6, 107-15.
- COCHRANE, A. 1972. *Effectiveness and Efficiency: Random Reflections of Health Services*, Abingdon, Oxford, Nuffield Press.
- COFFEY, A. 1999. *The Ethnographic Self*, London, Sage Publications Ltd.
- COFFEY, A. & ATKINSON, P. 1996. *Making Sense of Qualitative Data; Complementary Research Strategies*, Thousand Oaks, California., Sage Publications Ltd.
- CRANNEY, M. & WALLEY, T. 1996. Same information, different decisions: the influence of evidence on the management of hypertension in the elderly. *British Journal of General Practice*, 46, 661-3.
- CRIBB, A. & BARBER, N. 1997. Prescribers, patients and policy: the limits of technique. *Health Care Analysis*, 5, 292-298.
- CROWE, S., TULLY, M. P. & CANTRILL, J. A. 2009. The prescribing of specialist medicines: what factors influence GPs' decision making? *Family Practice*, 26, 301-8.
- DAVIDOFF, F., HAYNES, B., SACKETT, D. & SMITH, R. 1995. Evidence based medicine. *BMJ (Clinical Research Ed)*, 310, 1085-6.
- DAVIES, H. T. & NUTLEY, S. M. 2000. Developing learning organisations in the new NHS. *British Medical Journal*, 320, 998-1001.
- DAVIES, H. T., NUTLEY, S. M. & MANNION, R. 2000. Organisational culture and quality of health care. *Quality in Health Care*, 9, 111-9.
- DAVIES, H. T. O., MANNION, R., JACOBS, R., POWELL, A. E. & MARSHALL, M. N. 2007. Does hospital organisational culture influence hospital performance? *Medical Care Research and Review*, 64, 46-65.
- DAVIS, D., O'BRIEN, M. A. T., FREEMANTLE, N., WOLF, F. M., MAZMANIAN, P. & TAYLOR-VAISEY, A. 1999. Impact of Formal Continuing Medical Education: Do Conferences, Workshops, Rounds, and Other Traditional Continuing Education Activities Change Physician Behavior or Health Care Outcomes? *Journal of American Medical Association*, 282, 867-874.

- DAVIS, D. A., THOMSON, M. A., OXMAN, A. D. & HAYNES, R. B. 1995. Changing physician performance. A systematic review of the effect of continuing medical education strategies. *Journal of American Medical Association*, 274, 700-5.
- DAVIS, P., GRIBBEN, B., LAY-YEE, R., SCOTT, A., DAVIS, P., GRIBBEN, B., LAY-YEE, R. & SCOTT, A. 2002. How much variation in clinical activity is there between general practitioners? A multi-level analysis of decision-making in primary care. *Journal of Health Services & Research Policy*, 7, 202-8.
- DAY, R. & KLEIN, R. 1983. Two views on the Griffiths report. The mobilisation of consent versus the management of conflict: decoding the Griffiths report. *British Medical Journal*, 287, 1813-1816.
- DE BAKKER, D. H., COFFIE, D. S., HEERDINK, E. R., VAN DIJK, L. & GROENEWEGEN, P. P. 2007. Determinants of the range of drugs prescribed in general practice: a cross-sectional analysis. *BMC Health Services Research*, 7, 132.
- DE LUSIGNAN, S., METSEMAKERS, J. F., HOUWINK, P., GUNNARSDOTTIR, V. & VAN DER LEI, J. 2006. Routinely collected general practice data: goldmines for research? A report of the European Federation for Medical Informatics Primary Care Informatics Working Group (EFMI PCIWG) from MIE2006, Maastricht, The Netherlands. *Informatics in Primary Care*, 14, 203-9.
- DE VRIES, C. S., VAN DIEPEN, N. M., TROMP, T. F. J. & JONG-VAN DEN BERG, L. T. W. 1995. Auditing GPs' prescribing habits: cardiovascular prescribing frequently continues medication initiated by specialists. *European Journal of Clinical Pharmacology*, 50, 349-352.
- DENIG, P. & BRADLEY, C. 1998. How doctors choose drugs. In: HOBBS, F. D. R. & BRADLEY, C. (eds.) *Prescribing in primary care*. Oxford: Oxford University Press.
- DENIG, P. & HAAIJER-RUSKAMP, F. 1994. 'Thinking aloud' as a method of analysing the treatment decisions of physicians. *The European Journal of Public Health*, 4, 55-59.
- DENZIN, N. K. & LINCOLN, Y. S. 1994. *Handbook of Qualitative Research*, Thousand Oaks, Sage Publications Ltd.
- DEPARTMENT OF HEALTH 1997. The new NHS: modern, dependable. London: Her Majesty's Stationary Office.
- DEPARTMENT OF HEALTH 1998. A first-class service, quality in the NHS. London: Department of Health.
- DEPARTMENT OF HEALTH 2000. Prescriptions dispensed in the community statistics for 1989 to 1999: England.: Statistical Bulletin.

- DEPARTMENT OF HEALTH 2007. Supporting people with long term conditions. London: Department of Health.
- DEPARTMENT OF HEALTH & NHS CONFEDERATION 2003. *Investing in General Practice - The New General Medical Services Contract*, London, Department of Health.
- DIXON, J. & MAYS, N. 1997. New Labour, new NHS? *British Medical Journal*, 315, 1639-1640.
- DOLOVICH, L., POTTIE, K., KACZOROWSKI, J., FARRELL, B., AUSTIN, Z., RODRIGUEZ, C., GAEBEL, K. & SELLORS, C. 2008. Integrating family medicine and pharmacy to advance primary care therapeutics. *Clinical Pharmacology & Therapeutics*, 83, 913-7.
- DONABEDIAN, A. 2003. *An Introduction to Quality Assurance in Health Care*, New York, Oxford University Press, Inc.
- DONALDSON, L. J. & GRAY, J. A. 1998. Clinical governance: a quality duty for health organisations. *Quality in Health Care*, 7 Suppl, S37-44.
- DOWELL, J., PITKETHLY, M., BAIN, J. & MARTIN, S. 2001. A randomised controlled trial of delayed antibiotic prescribing as a strategy for managing uncomplicated respiratory tract infection in primary care. *British Journal of General Practice*, 51, 200-5.
- DOWELL, J. S., SNADDEN, D. & DUNBAR, J. A. 1996. Rapid prescribing change, how do patients respond? *Social Science & Medicine*, 43, 1543-9.
- DOWRICK, C., GASK, L., PERRY, R., DIXON, C. & USHERWOOD, T. 2000. Do general practitioners' attitudes towards depression predict their clinical behaviour? *Psychological Medicine*, 30, 413-419.
- ECCLES, M., MCCOLL, E., STEEN, N., ROUSSEAU, N., GRIMSHAW, J., PARKIN, D. & PURVES, I. 2002. Effect of computerised evidence based guidelines on management of asthma and angina in adults in primary care: Cluster randomised controlled trial. *British Medical Journal*, 325, 941-944.
- ECCLES, M., STEEN, I. N., WHITTY, P. & HALL, L. 2007. Is untargeted educational outreach visiting delivered by pharmaceutical advisers effective in primary care? A pragmatic randomised controlled trial. *Implementation Science*, 26, 23.
- ELKJAER, B. 2004. Organizational Learning: The 'Third Way'. *Management Learning*.
- EVANS, J. S., HARRIES, C., DENNIS, I. & DEAN, J. 1995. General practitioners' tacit and stated policies in the prescription of lipid lowering agents.[see comment]. *British Journal of General Practice*, 45, 15-8.

- EXWORTHY, M., WILKINSON, E., MCCOLL, A., MOORE, M., RODERICK, P., SMITH, H. & GABBAY, J. 2003. The role of performance indicators in changing the autonomy of the general practice profession in the UK. *Social Science & Medicine*, 56, 1493 - 504.
- FAIRHURST, K. & HUBY, G. 1998. From trial data to practical knowledge: qualitative study of how general practitioners have accessed and used evidence about statin drugs in their management of hypercholesterolaemia. *British Medical Journal*, 317, 1130-4.
- FAIRHURST, K. & MAY, C. 2006. What general practitioners find satisfying in their work: implications for health care system reform. *Annals Of Family Medicine*, 4, 500-5.
- FARMER, A. P., LEGARE, F., TURCOT, L., GRIMSHAW, J., HARVEY, E., MCGOWAN, J. & WOLF, F. 2008. Printed Educational Materials: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, CD004398.
- FEELY, J., CHAN, R., MC MANUS, J. & O'SHEA, B. 1999. The Influence of Hospital-Based Prescribers on Prescribing in General Practice. *Pharmacoeconomics*, 16, 175-181.
- FERLIE, E., FITZGERALD, L. & WOOD, M. 2000. Getting evidence into clinical practice: an organisational behaviour perspective. *Journal of Health Service Research and Policy*, 5, 96-102.
- FINLAY, L. 2003. The reflexive journey: mapping multiple routes. In: FINLAY, L. A. G., BRENDAN (ed.) *Reflexivity, A Practical Guide for Researchers in Health and Social Science*. Oxford: Blackwell Science.
- FIRTH-COZENS, J. 2001. Cultures for improving patient safety through learning: the role of teamwork. *Quality Health Care*, 10 Suppl 2, ii26-31.
- FLOTTORP, S., HAVELSRUD, K. & OXMAN, A. 2003. Process evaluation of a cluster randomized trial of tailored interventions to implement guidelines in primary care - why is it so hard to change practice? *Family Practice*, 20, 333 - 339.
- FORSETLUND, L., BJORNDAAL, A., RASHIDIAN, A., JAMTVEDT, G., O'BRIEN, M. A., WOLF, F., DAVIS, D., ODGAARD-JENSEN, J. & OXMAN, A. D. 2009. Continuing education meetings and workshops: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, 4.
- FOY, R., ECCLES, M., JAMTVEDT, G., YOUNG, J., GRIMSHAW, J. & BAKER, R. 2005. What do we know about how to do audit and feedback? Pitfalls in applying evidence from a systematic review. *BMC Health Services Research*, 5, 50.
- FRANKE, L., AVERY, A. J., GROOM, L. & HORSFIELD, P. 2000. Is there a role for computerized decision support for drug dosing in general practice? A questionnaire survey. *Journal of Clinical Pharmacy and Therapeutics*, 25, 373-377.

- FREEMAN, A. C. & SWEENEY, K. 2001. Why general practitioners do not implement evidence: qualitative study. *British Medical Journal*, 323, 1100-2.
- FREEMANTLE, N., NAZARETH, I., ECCLES, M., WOOD, J., HAINES, A. & TRIALISTS, T. E.-B. O. 2002. A randomised trial of the effect of educational outreach by community pharmacists on prescribing in the UK General Practice. *British Journal of General Practice*, 52, 290 - 295.
- GABBAY, J. & LE MAY, A. 2004. Evidence based guidelines or collectively constructed "mindlines?" Ethnographic study of knowledge management in primary care. *British Medical Journal*, 329, 1013-1018.
- GARFIELD, S., BARBER, N., WALLEY, P., WILLSON, A. & ELIASSON, L. 2009. Quality of medication use in primary care--mapping the problem, working to a solution: a systematic review of the literature. *BMC Medicine*, 7, 50.
- GARG, A. X., ADHIKARI, N. K. J., MCDONALD, H., ROSAS-ARELLANO, M. P., DEVEREAUX, P. J., BEYENE, J., SAM, J. & HAYNES, R. B. 2005. Effects of Computerised Clinical Decision Support Systems on Practitioner Performance and Patient Outcomes. A systematic review. *Journal of the American Medical Association*, 293, 1223-1238.
- GIBSON, M., NEIL JENKINGS, K., WILSON, R. & PURVES, I. 2006. Verbal prescribing in general practice consultations. *Social Science & Medicine*, 63, 1684-1698.
- GIOIA, D. A., THOMAS, J. B., CLARK, S. M. & CHITTIPEDDI, K. 1994. Symbolism and strategic change in academia: the dynamics of sensemaking and influence. *Organisational Science*, 5, 363-383.
- GRAHAM, R. P., JAMES, P. A. & COWAN, T. M. 2000. Are clinical practice guidelines valid for primary care? *Journal of Clinical Epidemiology*, 53, 949-954.
- GRANT, S., HUBY, G., WATKINS, F., CHECKLAND, K., MCDONALD, R., DAVIES, H. & GUTHRIE, B. 2009. The impact of pay-for-performance on professional boundaries in UK general practice: an ethnographic study. *Sociology of Health and Illness*, 31, 229-45.
- GREENFIELD, S., BRYAN, S., GILL, P., GUTRIDGE, K. & MARSHALL, T. 2005. Factors influencing clinicians' decisions to prescribe medication to prevent coronary heart disease. *Journal of Clinical Pharmacy & Therapeutics*, 30, 77-84.
- GRIFFITHS, R. 1983. NHS Management Inquiry. London: Department for Health and Social Security.
- GRIMSHAW, J., ECCLES, M., GREENER, J., MACLENNAN, G., IBBOTSON, T., KAHAN, J. P. & SULLIVAN, F. 2006. Is the involvement of opinion leaders in the implementation of research findings a feasible strategy? *Implementation Science*, 1.

- GRIMSHAW, J., THOMAS, R., MACLENNAN, G., FRASER, C., RAMSAY, C., VALE, L., WHITTY, P., ECCLES, M., MATOWE, L., SHIRAN, L., WENSING, M., DIJKSTRA, R. & DONALDSON, C. 2004. Effectiveness and efficiency of guideline dissemination and implementation strategies. *Health Technology Assessment*, 8, 1 - 72.
- GROL, R. 2001. Improving the Quality of Medical Care: Building Bridges Among Professional Pride, Payer Profit, and Patient Satisfaction. *Journal of the American Medical Association*, 286, 2578-2585.
- GROL, R., DALHUIJSEN, J., THOMAS, S., VELD, C. I. T., RUTTEN, G. & MOKKINK, H. 1998. Attributes of clinical guidelines that influence use of guidelines in general practice: observational study. *British Medical Journal*, 317, 858-861.
- GROL, R. & GRIMSHAW, J. 2003. From best evidence to best practice: effective implementation of change in patients' care. *Lancet*, 362, 1225 - 30.
- GROUP, E. B. M. W. 1992. Evidence Based Medicine; A new approach to teaching the practice of medicine. *The Journal of the American Medical Association*, 268, 2420-2425.
- GUBA, E. G. & LINCOLN, Y. S. 1989. *Fourth generation evaluation*, Newbury Park, CA, Sage Publications.
- GUTHRIE, B., SAULTZ, J. W., FREEMAN, G. K. & HAGGERTY, J. L. 2008. Continuity of care matters. *British Journal of General Practice*, 337, a867-.
- GUTHRIE, B. & WYKE, S. 2006. Personal continuity and access in UK general practice: a qualitative study of general practitioners' and patients' perceptions of when and how they matter. *BMC Family Practice*, 7, 11.
- GUTHRIE, B., WYKE, S. & BRAMPTON, S. 2000. Controversy in primary care: Does continuity in general practice really matter? Commentary: A patient's perspective of continuity. *British Medical Journal* 321, 734-736.
- HAINES, A. & DONALD, A. 1998. Looking forward: Getting research findings into practice: Making better use of research findings. *British Medical Journal*, 317, 72-75.
- HAINES, A. & JONES, R. 1994. Implementing findings of research. *British Medical Journal*, 308, 1488-1492.
- HALLIGAN, A. & DONALDSON, L. 2001. Implementing clinical governance: turning vision into reality. *British Medical Journal*, 322, 1413-1417.
- HAMMERSLEY, M. & ATKINSON, P. 2007. *Ethnography*, Abingdon, Routledge.
- HARRIS, C. M. & DAJDA, R. 1996. The scale of repeat prescribing. *British Journal of General Practice*, 46, 649-53.

- HARRISON, S. & AHMAD, W. 2000. Medical Autonomy and the UK State 1975 to 2025. *Sociology* 34, 129-146.
- HAYNES, R. B., DEVEREAUX, P. J. & GUYATT, G. H. 2002. Clinical expertise in the era of evidence-based medicine and patient choice. *Evidence Based Medicine*, 7, 36-38.
- HEALTH, D. O. & CONFEDERATION, N. 2003. Investing in General Practice - the New General Medical Services Contract. London: Department of Health
- HEMMINKI, E. 1975. Review of the literature on the factors affecting drug prescribing. *Social Science & Medicine*, 9, 111-115.
- HJORTDAHL, P. & LAERUM, E. 1992. Continuity of care in general practice: effect on patient satisfaction. *British Medical Journal*, 304, 1287-1290.
- HO, P. M., PETERSON, P. N. & MASOUDI, F. A. 2008. Evaluating the evidence: is there a rigid hierarchy? *Circulation*, 118, 1675-1684.
- HOLLAND, R., DESBOROUGH, J., GOODYER, L., HALL, S., WRIGHT, D. & LOKE, Y. K. 2008. Does pharmacist-led medication review help to reduce hospital admissions and deaths in older people? A systematic review and meta-analysis. *British Journal of Clinical Pharmacology*, 65, 303-316.
- HOWARD, R., AVERY, A. & BISSELL, P. 2008. Causes of preventable drug-related hospital admissions: a qualitative study. *Quality and Safety in Health Care*, 17, 109-116.
- HOWIE, J. G. R., HEANEY, D. & MAXWELL, M. 2004. Quality, core values and the general practice consultation: Issues of definition, measurement and delivery. *Family Practice*, 21, 458-468.
- HUBY, G., GUTHRIE, B., GRANT, S., WATKINS, F., CHECKLAND, K., MCDONALD, R. & DAVIES, H. 2008. Whither British general practice after the 2004 GMS contract? Stories and realities of change in four UK general practices. *Journal of Health Organisation and Management*, 22, 63-78.
- HURWITZ, B. 1999. Clinical guidelines: Legal and political considerations of clinical practice guidelines. *British Medical Journal*, 318, 661-664.
- HYDE, J., CALNAN, M., PRIOR, L., LEWIS, G., KESSLER, D. & SHARP, D. 2005. A qualitative study exploring how GPs decide to prescribe antidepressants. *British Journal of General Practice*, 55, 755-62.
- HYNES, D. J. 1992. Tackling arthritic pain relief. In: PRACTITIONERS, R. C. O. G. (ed.) *RCGP Members' Reference Book*. London: Royal College of General Practitioners.
- HYSONG, S., BEST, R. & PUGH, J. 2006. Audit and feedback and clinical practice guideline adherence: Making feedback actionable. *Implementation Science*, 1, 9.

- INFORMATION AND STATISTICS DIVISION SCOTLAND. 2004-2005. *The National Medicines Utilisation Unit* [Online].  
<http://www.isdscotland.org/isd/servlet/FileBuffer?namedFile=NMUU-leaflet-with-diagram-070207.pdf&pContentDispositionType=inline>. [Accessed 26.09.10].
- JACKSON, S. H. D., MANGONI, A. A. & BATTY, G. M. 2004. Optimisation of drug prescribing. *British Journal of Clinical Pharmacology*, 57, 231-236.
- JACOBY, A., SMITH, M. & ECCLES, M. 2003. A qualitative study to explore influences on general practitioners' decisions to prescribe new drugs. *British Journal of General Practice*, 53, 120-5.
- JAMESON, J. P. & BATY, P. J. Pharmacist collaborative management of poorly controlled diabetes mellitus: a randomized controlled trial. *American Journal of Managed Care*, 16, 250-5.
- JAMTVEDT, G., YOUNG, J., KRISTOFFERSEN, D., O'BRIEN, M. & OXMAN, A. 2006. Audit and feedback versus alternative strategies: effects on professional practice and health care outcomes. *Cochrane Database Systematic Reviews*, CD000259.
- JANSEN, Y., DE BONT, A., FOETS, M., BRUIJNZEELS, M. & BAL, R. 2007. Tailoring intervention procedures to routine primary health care practice; an ethnographic process evaluation. *BMC Health Services Research*, 7, 125.
- JONES, M. I., GREENFIELD, S., STEVENSON, F., NAYAK, A. & BRADLEY, C. 2001a. General Practitioner and Hospital-Initiated Prescribing. *The European Journal of General Practice*, 7, 18-22.
- JONES, M. I., GREENFIELD, S. M. & BRADLEY, C. P. 2001b. Prescribing new drugs: Qualitative study of influences on consultants and general practitioners. *British Medical Journal*, 323, 378-381.
- KEARLEY, K. E., FREEMAN, G. K. & HEATH, A. 2001. An exploration of the value of the personal doctor-patient relationship in general practice. *British Journal of General Practice*, 51, 712-717.
- KEDWARD, J. & DAKIN, L. 2003. A qualitative study of barriers to the use of statins and the implementation of coronary heart disease prevention in primary care. *British Journal of General Practice*, 53, 684-689.
- KENDALL, H. 2004. Why prescribing data are monitored. *The Pharmaceutical Journal*, 272, 21-22.
- KENDRICK, T., KING, F., ALBERTELLA, L. & SMITH, P. W. F. 2005. GP treatment decisions for patients with depression: An observational study. *British Journal of General Practice*, 55, 280-286.



- KENNEDY, I. 2001. Learning from Bristol: public inquiry into children's heart surgery at the Bristol Royal Infirmary 1984 - 1995. London: Stationary Office.
- KRSKA, J., CROMARTY, J. A., ARRIS, F., JAMIESON, D., HANSFORD, D., DUFFUS, P. R., DOWNIE, G. & SEYMOUR, D. G. 2001. Pharmacist-led medication review in patients over 65: a randomized, controlled trial in primary care. *Age & Ageing*, 30, 205-11.
- LAMARR, B., VALDEZ, C., DRISCOLL, K. & RYAN, M. 2010. Influence of pharmacist intervention on prescribing of angiotensin-converting-enzyme inhibitors, angiotensin II-receptor blockers, and aspirin for diabetic patients. *American Journal of Health-System Pharmacy*, 67, 290-4.
- LAMBERT, H. & MCKEVITT, C. 2002. Anthropology in health research: from qualitative methods to multidisciplinary. *British Medical Journal*, 325, 210-213.
- LESTER, H., SHARP, D. & LAKHANI, M. 2006. The Quality and Outcomes Framework of the GMS contract: a quiet evolution for 2006. *British Journal of General Practice*, 56, 244-246.
- LEWIS, J. & RITCHIE, J. 2003. Generalising from Qualitative Research. In: RITCHIE, J. & LEWIS, J. (eds.) *Qualitative Research Practice; A Guide for Social Science Students and Researchers*. London: Sage Publications Ltd.
- LINCOLN, Y. S. & GUBA, G. E. 1985. *Naturalistic Inquiry*, Beverly Hills, C.A, Sage Publications Ltd.
- LINDENMEYER, A., HEARNshaw, H., VERMEIRE, E., VAN ROYEN, P., WENS, J. & BIOT, Y. 2006. Interventions to improve adherence to medication in people with type 2 diabetes mellitus: a review of the literature on the role of pharmacists. *Journal of Clinical Pharmacy & Therapeutics*, 31, 409-19.
- LIPMAN, T. & PRICE, D. 2000. Decision making, evidence, audit, and education: Case study of antibiotic prescribing in general practice. *British Medical Journal*, 320, 1114-1118.
- LITTLE, P., DORWARD, M., WARNER, G., STEPHENS, K., SENIOR, J. & MOORE, M. 2004. Importance of patient pressure and perceived pressure and perceived medical need for investigations, referral, and prescribing in primary care: nested observational study.[see comment]. *British Medical Journal*, 328, 444.
- LUKAS, C. V., MOHR, D. C., METERKO, M., LUKAS, C. V., MOHR, D. C. & METERKO, M. 2009. Team effectiveness and organizational context in the implementation of a clinical innovation. *Quality Management in Health Care*, 18, 25-39.
- MADRIDEJOS-MORA, R., AMADO-GUIRADO, E. & PEREZ-RODRIGUEZ, M. T. 2004. Effectiveness of the combination of feedback and educational recommendations for improving drug prescription in general practice. *Medical Care*, 42, 643-8.

- MANNION, R., DAVIES, H. T. O. & MARSHALL, M. N. 2005. Cultural attributes of "high" and "low" performing hospitals. *Journal of Health Organizations Management*, 19, 431-19.
- MANNION, R., KONTEH, F. H. & DAVIES, H. T. 2009. Assessing organisational culture for quality and safety improvement: a national survey of tools and tool use. *Quality and Safety in Health Care*, 18, 153-6.
- MAPES, R. E. A. 1977. Physicians' drug innovation and relinquishment. *Social Science & Medicine*, 11, 619-624.
- MARSHALL, M., SHEAFF, R., ROGERS, A., CAMPBELL, S., HALLIWELL, S., PICKARD, S., SIBBALD, B. & ROLAND, M. 2002. A qualitative study of the cultural changes in primary care organisations needed to implement clinical governance. *British Journal of General Practice*, 52, 641-5.
- MARSHALL, T. & MOHAMMED, M. A. 2003. Understanding variation in quality improvement: the treatment of sore throats in primary care. *Family Practice*, 20, 69-73.
- MASON, J. 2002. *Qualitative Researching*, London, Sage Publications.
- MCCARTHY, M., WILSON-DAVIS, K. & MCGAVOCK, H. 1992. Relationship between the number of partners in a general practice and the number of different drugs prescribed by that practice. *British Journal of General Practice*, 42, 10-12.
- MCCOLL, A., RODERICK, P., GABBAY, J., SMITH, H. & MOORE, M. 1998a. Performance indicators for primary care groups: an evidence based approach. *British Medical Journal (Clinical Research Ed)*, 317, 1354-60.
- MCCOLL, A., SMITH, H., WHITE, P. & FIELD, J. 1998b. General practitioner's perceptions of the route to evidence based medicine: a questionnaire survey. *British Medical Journal (Clinical Research Ed)*, 316, 361-5.
- MCDERMOTT, M. E., SMITH, B. H., ELLIOTT, A. M., BOND, C. M., HANNAFORD, P. C., CHAMBERS, W. A., MCDERMOTT, M. E., SMITH, B. H., ELLIOTT, A. M., BOND, C. M., HANNAFORD, P. C. & CHAMBERS, W. A. 2006. The use of medication for chronic pain in primary care, and the potential for intervention by a practice-based pharmacist. *Family Practice*, 23, 46-52.
- MCDONALD, R., HARRISON, S., CHECKLAND, K., CAMPBELL, S. M. & ROLAND, M. 2007. Impact of financial incentives on clinical autonomy and internal motivation in primary care: ethnographic study. *British Medical Journal*, 334, 1357-.
- MCGAVOCK, H., WEBB, C. H., JOHNSTON, G. D. & MILLIGAN, E. 1993. Market penetration of new drugs in one United Kingdom region: implications for general practitioners and administrators. *British Medical Journal*, 307, 1118-1120.

- MCGAVOCK, H., WILSON-DAVIS, K. & CONNOLLY, J. P. 1999. Repeat prescribing management - a cause for concern. *British Journal of General Practice*, 49, 343 - 347.
- MCGETTIGAN, P., GOLDEN, J., FRYER, J., CHAN, R. & FEELY, J. 2001. Prescribers prefer people: The sources of information used by doctors for prescribing suggest that the medium is more important than the message. *British Journal of Clinical Pharmacology*, 51, 184-189.
- MILES, M. B. & HUBERMAN, A. M. 1994. *Qualitative Data Analysis: An expanded sourcebook*, London, Sage Publications Ltd.
- MONTGOMERY, A. A., FAHEY, T., PETERS, T. J., MACINTOSH, C. & SHARP, D. J. 2000. Evaluation of computer based clinical decision support system and risk chart for management of hypertension in primary care: Randomised controlled trial. *British Medical Journal*, 320, 686-690.
- MOREIRA, T., MAY, C., MASON, J. & ECCLES, M. 2006. A new method of analysis enabled a better understanding of clinical practice guideline development processes. *Journal of Clinical Epidemiology*, 59, 1199-206.
- MORRIS, C. J., CANTRILL, J. A., AVERY, A. J. & HOWARD, R. L. 2006. Preventing drug related morbidity: a process for facilitating changes in practice. *Quality and Safety in Health Care*, 15, 116-21.
- MOSS, F. 1998. Learning from tragedies. *Quality in Health Care*, 7, 119-120.
- MOYNIHAN, R. 2003. Who pays for the pizza? Redefining the relationships between doctors and drug companies. 1: Entanglement. *British Medical Journal*, 326, 1189-1192.
- MULROW, C. 1994. Rationale for systematic reviews. *British Medical Journal*, 309, 597 - 9.
- MURPHY, E., DINGWALL, R., GREATBATCH, D., PARKER, S. & WATSON, P. 1998. Qualitative research methods in health technology assessment: a review of the literature. In: PROGRAMME, N. R. D. H. (ed.) *Health Technology Assessment*. The National Coordinating Centre for Health Technology Assessment.
- MURRAY, E., CHARLES, C. & GAFNI, A. 2006. Shared decision-making in primary care: Tailoring the Charles *et al.* model to fit the context of general practice. *Patient Education and Counseling*, 62, 205-211.
- NATIONAL AUDIT OFFICE 2007. Prescribing costs in primary care. London: Comptroller and Auditor General, National Audit Office.
- NATIONAL INSTITUTE FOR HEALTH AND CLINICAL EXCELLENCE. 2010. *Who we are* [Online]. [http://www.nice.org.uk/aboutnice/whoweare/who\\_we\\_are.jsp](http://www.nice.org.uk/aboutnice/whoweare/who_we_are.jsp). [Accessed 26.09.10].

- NAZARETH, I., FREEMANTLE, N., DUGGAN, C., MASON, J. & HAINES, A. 2002. Evaluation of a complex intervention for changing professional behaviour: The evidence based out reach (EBOR) trial. *Journal of Health Services & Research Policy*, 7, 230-238.
- NHS TAYSIDE. 2006. *Tayside Area Prescribing Guide* [Online]. <http://www.nhstaysideadtc.scot.nhs.uk/approved/formular/pdfdocs/4intro.pdf>. [Accessed 26.09.10].
- NHS THE INFORMATION CENTRE. 2008. *Prescriptions dispensed in the community, statistics for 1998 to 2008: England* [Online]. <http://www.ic.nhs.uk/statistics-and-data-collections/primary-care/prescriptions/prescriptions-dispensed-in-the-community-statistics-for-1998-to-2008-england>. [Accessed 26.09.10].
- O'BRIEN, M. A., ROGERS, S., JAMTVEDT, G., OXMAN, A. D., ODGAARD-JENSEN, J., KRISTOFFERSEN, D. T., FORSETLUND, L., BAINBRIDGE, D., FREEMANTLE, N., DAVIS, D., HAYNES, R. B. & HARVEY, E. 2009. Educational outreach visits: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, 4.
- O'REILLY, K. 2005. *Ethnographic Methods*, Abingdon, Routledge.
- OFFICE FOR NATIONAL STATISTICS. 2010. *Population; aging* [Online]. <http://www.statistics.gov.uk/cci/nugget.asp?id=949>. [Accessed 26.09.10].
- OXMAN, A., SACKETT, D. & GUYATT, G. H. 1993. Users' guide to the medical literature 1. How to get started. *The Journal of the American Medical Association*, 270, 2093-2095.
- OXMAN, A., THOMSON, M. A., DAVIS, D. A. & HAYNES, B. 1995. No Magic Bullets: A systematic review of 102 trials of interventions to improve professional practice. *Canadian Medical Association Journal*, 153, 1423 - 1431.
- PALMER, R. H., HARGRAVES, J. L., ORAV, E. J., WRIGHT, E. A. & LOUIS, T. A. 1996. Leadership for quality improvement in group practices. *Medical Care*, 34, SS40-51.
- PARISH, P. A. 1973. Drug prescribing--the concern of all. *Royal Society of Health Journal*, 93, 213-7.
- PATTON, M. Q. 2002. *Qualitative Research and Evaluation Methods*, Thousand Oaks, Sage Publications.
- POPE, C., ZIEBLAND, S. & MAYS, N. 2000. Qualitative research in health care: Analysing qualitative data. *British Medical Journal*, 320, 114-116.
- POTTIE, K., FARRELL, B., HAYDT, S., DOLOVICH, L., SELLORS, C., KENNIE, N., HOGG, W., MARTIN, C. M., POTTIE, K., FARRELL, B., HAYDT, S., DOLOVICH, L., SELLORS, C., KENNIE, N., HOGG, W. & MARTIN, C. M. 2008. Integrating

- pharmacists into family practice teams: physicians' perspectives on collaborative care. *Canadian Family Physician*, 54, 1714-1717.e5.
- POWELL, A., RUSHMER, R. & DAVIES, H. 2009. Effective quality improvement: some necessary conditions. *British Journal of Healthcare Management*, 15, 62-68.
- POWER, M. 1997. *The Audit Society*, Oxford, Oxford University Press.
- PROSSER, H., ALMOND, S. & WALLEY, T. 2003. Influences on GPs' decision to prescribe new drugs-the importance of who says what. *Family Practice*, 20, 61-8.
- PROSSER, H. & WALLEY, T. 2003. New drug uptake: Qualitative comparison of high and low prescribing GPs' attitudes and approach. *Family Practice*, 20, 583-591.
- PROSSER, H. & WALLEY, T. 2007. Perceptions of the impact of primary care organizations on GP prescribing: the iron fist in the velvet glove? *Journal of Health Organization & Management*, 21, 5-26.
- RHYDDERCH, M., EDWARDS, A., ELWYN, G., MARSHALL, M., ENGELS, Y., VAN DER HOMBERGH, P. & GROL, R. 2005. Organisational assessment in general practice: a systematic review and implications for quality improvement. *Journal of Evaluation in Clinical Practice*, 11, 366 - 378.
- ROBINSON, M. B. 1994. Evaluation of Medical Audit. *Journal of Epidemiology & Community Health*, 48, 435-40.
- ROUSSEAU, N., MCCOLL, E., NEWTON, J., GRIMSHAW, J. & ECCLES, M. 2003. Practice based, longitudinal, qualitative interview study of computerised evidence based guidelines in primary care. *British Medical Journal*, 326, 314.
- ROZENFELD, Y., HUNT, J. S., ROZENFELD, Y. & HUNT, J. S. 2006. Effect of patient withdrawal on a study evaluating pharmacist management of hypertension. *Pharmacotherapy*, 26, 1565-71.
- RUBENSTEIN, L. V., PARKER, L. E., MEREDITH, L. S., ALTSCHULER, A., DEPILLIS, E., HERNANDEZ, J., GORDON, N. P., RUBENSTEIN, L. V., PARKER, L. E., MEREDITH, L. S., ALTSCHULER, A., DEPILLIS, E., HERNANDEZ, J. & GORDON, N. P. 2002. Understanding team-based quality improvement for depression in primary care. *Health Services Research*, 37, 1009-29.
- RUSHMER, R., KELLY, D., LOUGH, M., WILKINSON, J. E. & DAVIES, H. T. 2004. Introducing the Learning Practice--I. The characteristics of Learning Organizations in Primary Care.[see comment]. *Journal of Evaluation in Clinical Practice*, 10, 375-86.

- SACKETT, D. L., ROSENBERG, W. M., GRAY, J. A., HAYNES, R. B. & RICHARDSON, W. S. 1996. Evidence based medicine: what it is and what it isn't. *British Medical Journal*, 312, 71-2.
- SCALLY, G. & DONALDSON, L. J. 1998. Looking forward: Clinical governance and the drive for quality improvement in the new NHS in England. *British Medical Journal*, 317, 61-65.
- SCHERS, H., WEBSTER, S., VAN DEN HOOGEN, H., AVERY, A., GROU, R. & VAN DEN BOSCH, W. 2002. Continuity of care in general practice: a survey of patients' views. *British Journal of General Practice*, 52, 459-462.
- SCHWANDT, T. 1997. *Qualitative inquiry: a dictionary of terms*, Thousand Oaks, Sage Publications.
- SCOTT, J. C. 1985. *Weapons of the Weak: Everyday Forms of Peasant Resistance*, New Haven, Yale University Press.
- SCOTTISH INTERCOLLEGIATE GUIDELINES NETWORK 2007. Risk estimation and the prevention of cardiovascular disease. Edinburgh: Scottish Intercollegiate Guidelines Network.
- SCOTTISH INTERCOLLEGIATE GUIDELINES NETWORK. 2009. *About SIGN* [Online]. <http://www.sign.ac.uk/about/index.html>. [Accessed 26.09.10].
- SECRETARY OF STATE FOR HEALTH, WALES, NORTHERN IRELAND & SCOTLAND., A. 1989. Working for patients London: Her Majesty's Stationary Office.
- SHAUGHNESSY, A. F., SLAWSON, D. C. & BENNETT, J. H. 1994. Separating the wheat from the chaff: identifying fallacies in pharmaceutical promotion. *Journal of General Internal Medicine*, 9, 563-567.
- SHEAFF, R., ROGERS, A., PICKARD, S., MARSHALL, M., CAMPBELL, S., SIBBALD, B., HALLIWELL, S. & ROLAND, M. 2003. A subtle governance: 'soft' medical leadership in English primary care. *Sociology of Health & Illness*, 25, 408-428.
- SHEAFF, R., SIBBALD, B., CAMPBELL, S., ROLAND, M., MARSHALL, M., PICKARD, S., GASK, L., ROGERS, A. & HALLIWELL, S. 2004. Soft governance and attitudes to clinical quality in English general practice. *Journal of Health Services & Research Policy*, 9, 132-138.
- SHEKELLE, P. 2003. New contract for general practitioners. *British Medical Journal*, 326, 457-458.
- SHELDON, T. 1998. Promoting health care quality: what role performance indicators? *Quality in Health Care*, 7, S45-S50.
- SILVERMAN, D. 1993. *Interpreting Qualitative Data*, London, Sage Publications Ltd.

- SNADDEN, D. 2007. Taking medicines. *In: DOWELL, J., WILLIAMS, B. & SNADDEN, D. (eds.) Patient-Centered Prescribing: seeking concordance in practice.* Abingdon, Oxon: Radcliffe Publishing Ltd.
- SNAPE, D. & SPENCER, L. 2003. The Foundations of Qualitative Research. *In: RITCHIE, J. & LEWIS, J. (eds.) Qualitative Research Practice.* London: Sage Publications Ltd.
- SPOONER, A., CHAPPLE, A. & ROLAND, M. 2001. What makes British general practitioners take part in a quality improvement scheme? *Journal of Health Services & Research Policy*, 6, 145-150.
- STAKE, R. 1995. *The Art of Case Study Research*, Thousand Oaks, Sage Publications.
- STEVENSON, F. A., BARRY, C. A., BRITTEN, N., BARBER, N. & BRADLEY, C. P. 2000a. Doctor-patient communication about drugs: The evidence for shared decision making. *Social Science & Medicine*, 50, 829-840.
- STEVENSON, F. A., GERRETT, D., RIVERS, P., WALLACE, G., STEVENSON, F. A., GERRETT, D., RIVERS, P. & WALLACE, G. 2000b. GPs' recognition of, and response to, influences on patients' medicine taking: the implications for communication. *Family Practice*, 17, 119-23.
- STEWART, M., BROWN, J. B. & WESTON, W. W. 2003. *Patient-Centered Medicine: transforming the clinical method*, Thousand Oaks, CA., Sage Publications.
- STRATHEARN, M. 2000. *Audit Cultures*, Abingdon, Routledge.
- STRAUSS, A. & CORBIN, J. 1990. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*, Newbury Park, Sage Publications Ltd.
- SULLIVAN, F. & WYATT, J. C. 2005. How decision support tools help define clinical problems. *British Medical Journal*, 331, 831-3.
- SULLIVAN, F. M. & MACNAUGHTON, R. J. 1996. Evidence in consultations: interpreted and individualised. *The Lancet*, 348, 941-943.
- TAYLOR, R. J. & BOND, C. M. 1991. Change in the established prescribing habits of general practitioners: an analysis of initial prescriptions in general practice. *British Journal of General Practice*, 41, 244-8.
- TEAL, S., RICKETTS, L., BELTON, A., ALLSOPP, G., SILCOCK, J. & WRIGHT, D. J. 2002. How effective are pharmacists who work with medical practitioners? A study of interventions intended to influence prescribing. *International Journal of Pharmacy Practice*, 10, 185-190.

- THE ASSOCIATION OF THE BRITISH PHARMACEUTICAL SOCIETY. 2007. *Facts and statistics from the pharmaceutical industry* [Online]. <http://www.abpi.org.uk/statistics/section.asp?sect=4>. [Accessed 26.09.10].
- THE SCOTTISH GOVERNMENT. 2007. *Consultation on A Safe Prescription: Developing Nurse, Midwife and Allied Health Profession (NMAHP) Prescribing in NHS Scotland* [Online]. <http://www.scotland.gov.uk/Publications/2007/11/08120246/0>. [Accessed 26.09.10].
- THE SCOTTISH GOVERNMENT. 2010a. *Supplementary Prescribing by Nurses within NHSScotland: A Guide for Implementation* [Online]. <http://www.scotland.gov.uk/Publications/2003/12/18513/28934>. [Accessed 26.09.10].
- THE SCOTTISH GOVERNMENT. 2010b. *Supplementary Prescribing Pharmacist Practitioners - A Guide for Implementation with NHSScotland* [Online]. <http://www.scotland.gov.uk/Publications/2004/06/19514/39176>. [Accessed 26.09.10].
- THISTLETHWAITE, J. E., AJJAWI, R. & ASLANI, P. 2010. The decision to prescribe: influences and choice. *InnovAiT*, 3, 237-243.
- THOMSON, A. N., CRAIG, B. J. & BARHAM, P. M. 1994. Attitudes of general practitioners in New Zealand to pharmaceutical representatives. *British Journal of General Practice*, 44, 220-223.
- THORNE, S. 2008. *Interpretive Description*, Walnut Creek, Left Coast Press, Inc.
- TIMMINS, N. 2005. Do GPs deserve their recent pay rise? *British Medical Journal*, 331, 800-.
- TONNA, A. P., STEWART, D., WEST, B. & MCCAIG, D. 2007. Pharmacist prescribing in the UK - a literature review of current practice and research. *Journal of Clinical Pharmacy & Therapeutics*, 32, 545-56.
- TREWBY, P. N., REDDY, A. V., TREWBY, C. S., ASHTON, V. J., BRENNAN, G. & INGLIS, J. 2002. Are preventable drugs preventable enough? A study of patient's expectation of benefit from preventive drugs. *Clinical Medicine*, 2, 527-533.
- U.S. INSTITUTE OF MEDICINE 2000. *To err is human: building a safer health care system*. Washington, D.C.: Institute of Medicine.
- U.S. INSTITUTE OF MEDICINE 2001. *Crossing the quality chasm: a new health system for the 21st Century*. Washington, D.C.: Institute of Medicine.
- VIRJI, A., BRITTEN, N., VIRJI, A. & BRITTEN, N. 1991. A study of the relationship between patients' attitudes and doctors' prescribing. *Family Practice*, 8, 314-9.
- WALKER, A., GRIMSHAW, J. & ARMSTRONG, E. 2001. Salient beliefs and intentions to prescribe antibiotics for patients with a sore throat. *British Journal of Health Psychology*, 6, 347 - 360.



- WALKER, J. & MATHERS, N. 2004. Working together: a qualitative study of effective group formation amongst GPs during a cost-driven prescribing initiative. *Family Practice*, 21, 552-558.
- WATHEN, B. & DEAN, T. 2004. An evaluation of the impact of NICE guidance on GP prescribing. *British Journal of General Practice*, 54, 103-7.
- WATKINS, C., HARVEY, I., CARTHY, P., MOORE, L., ROBINSON, E. & BRAUN, R. 2003. Attitudes and behaviour of general practitioners and their prescribing costs: A national cross sectional survey. *Quality & Safety in Health Care*, 12, 29-34.
- WATKINS, C., TIMM, A., GOOBERMAN-HILL, R., HARVEY, I., HAINES, A. & DONOVAN, J. 2004. Factors affecting feasibility and acceptability of a practice-based educational intervention to support evidence-based prescribing: A qualitative study. *Family Practice*, 21, 661-669.
- WATSON, M., GUNNELL, D., PETERS, T., BROOKES, S. & SHARP, D. 2001. Guidelines and educational outreach visits from community pharmacists to improve prescribing in general practice: a randomised controlled trial. *Journal of Health Services & Research Policy*, 6, 207-13.
- WAZANA, A. 2000. Physicians and the Pharmaceutical Industry: Is a Gift Ever Just a Gift? *Journal of the American Medical Association*, 283, 373-380.
- WEBB, S. & LLOYD, M. 1994. Prescribing and referral in general practice: A study of patients' expectations and doctors' actions. *British Journal of General Practice*, 44, 165-169.
- WEICK, K. 2001. *Making sense of the organisation*, Malden, MA, USA, Blackwell Publishing.
- WEICK, K., SUTCLIFFE, K. & OBSTFIELD, D. 2005. Organizing and the process of sensemaking. *Organisational Science*, 16, 409-421.
- WEISS, M. & SUTTON, J. 2009. The changing nature of prescribing; Pharmacists as prescribers and challenges to medical dominance. *Sociology of Health & Illness*, 31, 406-421.
- WENGER, E. 1998. *Communities of practice*, Cambridge, Cambridge University Press.
- WINDRIDGE, K., TARRANT, C., FREEMAN, G., BAKER, R., BOULTON, M. & LOW, J. 2004. Problems with a 'target' approach to access in primary care: a qualitative study. *British Journal of General Practice*, 54, 364-366.
- YIN, R. 1994. *Case Study Research; design and methods*, Thousand Oaks, Sage Publications.
- ZERMANSKY, A. G. 1996. Who controls repeats. *British Journal of General Practice*, 46, 643 - 647.
- ZERMANSKY, A. G., PETTY, D. R., RAYNOR, D. K., FREEMANTLE, N., VAIL, A. & LOWE, C. J. 2001. Randomised controlled trial of clinical medication review by a

pharmacist of elderly patients receiving repeat prescriptions in general practice. *British Medical Journal*, 323, 1340-3.

ZIEGLER, M., LEW, P. & SINGER, B. C. 1995. The Accuracy of Drug Information From Pharmaceutical Sales Representatives. *Journal of American Medical Association*, 273, 1296-1298.

## Appendices

Appendix 1: Ethics approval letter and University  
Sponsorship letter



## Research and Innovation Services

Director  
James Houston MSc MIBiol CBiol

Ms Aileen Grant  
Tayside Centre for General Practice  
Community Health Sciences  
Ninewells Hospital and Medical School  
Dundee  
DD1 9SY

Ref: EB/LM/LET182/17136/Ln336

26th October 2006

Deputy Director  
Diane Taylor BSc DipBA

Head of Research Grants & Contracts  
Graeme Findlay MA(Hons)

Dear Ms Grant,

**Sponsor Status**

**University CI/PI:** Miss Aileen Grant

**Funder:** The Chief Scientist Office

**Project Title:** The utility of individual patient and population data in primary care.

**REC Reference:** Not Known

Subject to the Tayside Committee on Medical Research Ethics giving a favourable opinion of the above research, I confirm that the University of Dundee accepts the responsibilities of Sponsor status for the above project as detailed in the terms of the Research Governance Framework for Health and Community Care.

Yours sincerely

**James Houston**  
Director

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cc Dr Ellie Dow, R&D Director, R&D Office, Ninewells  
Alison Coughtrie, School of Medicine, Ninewells  
Mr Duncan Heather, General Practice, Ninewells  
Professor Jeremy Wyatt, Community Health Sciences, Ninewells

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Date 16 November 2006  
Your Ref  
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Enquiries to Miss Fiona Bain  
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Dear Miss Grant

**Full title of study:** **How are prescribing decisions made in general practice? What are the influences on acute and repeat prescribing decisions and how do they exert their effect?**

**REC reference number:** **06/S1402/99**

The Research Ethics Committee reviewed the above application at the meeting held on 10 November 2006.

#### **Ethical opinion**

The Committee has no real issues with the study and most of what follows is for your information and consideration only.

1. While it is entirely appropriate to invoke an ethnographic methodology in order to study the general question of how dispensing decisions in GP practices are made, there are some aspects of your submission that raise methodological questions which it might be helpful to consider more fully. For example, given that an ethnographic study requires such intensive and comprehensive observation, why would you need to study possibly 2, 3 or 4 practices, why not just the one? If expanding the sample were to be done with the aim of detecting patterns or commonalities, then such a sample would probably be too small and the method therefore inappropriate (and very demanding for one researcher!). This bears on the issue of how the main practice(s) will be selected: if the aim is 'only' to investigate how dispensing decisions are accomplished, then selecting a practice at random, rather than from the 'high quality' exemplary end of the PRISM database, would probably be the most informative approach. In the protocol you mention a rationale for selecting such an exemplary practice as your preferred subject - namely because this will give you a handle on how high quality practices behave. This represents a rather more specific research question and one which might be more directly addressed by say comparing one 'good' performer and one 'poor' performer using the PRISMS criteria. By examining only 'good performers' you may well be able to describe their characteristics, but you would not necessarily have identified what actually makes them 'good practice' surgeries.
2. The introductory letter to the practices should come from your supervisor, Dr John Dowell, who will be recognised as a senior person at the Centre for General Practice.
3. You should include relevant statements on confidentiality issues in the Information Sheet versions. You may select from the following:



Headquarters  
Kings Cross, Cleington Road, Dundee DD3 8EA

Chairperson, Mr Peter Bates  
Chief Executive, Professor Tony Wells

'All information obtained about you is provided in a totally anonymous way so that it can never be traced back to you.

or

'The information collected about you in this study will be anonymised i.e. linked to a special code that is stored separately on a password-protected computer file. Your identity will only be known to members of the research team (or, if relevant, state who else might have access now and in the future)'.

Concerning the storage and retention of study data and, where relevant, the sharing of data with others, you should state:

All information obtained in the study will be stored securely in <<name of department>> and destroyed once the study is completed.

or

All information obtained in the study will be stored securely in <<name of department>> and retained for a period of <<number of years>>.

or

All information obtained in the study will be stored securely in <<name of department>> and retained indefinitely.

and, if relevant

The information may be shared in future with other researchers who are carrying out research into <<name of condition, disease, etc>> (be as specific as possible).

or

The information may be shared in future with other researchers including commercial organisations who are carrying out research into <<name of condition, disease, etc>> (be as specific as possible).'

4. Also in the Information Sheets, under the heading 'What is involved....?' the sentence 'However, you do not need to consent to this until just before the interview' should be removed.

Please submit revised versions of all the Information Sheets for our records.

The members of the Committee present gave a favourable ethical opinion of the above research on the basis described in the application form, protocol and supporting documentation.

#### **Ethical review of research sites**

The favourable opinion applies to the research sites listed on the attached form

#### **Conditions of approval**

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

#### **Approved documents**

The documents reviewed and approved at the meeting were:

Document	Version	Date
Application		20 October 2006
Investigator CV	1	19 October 2006
Protocol	1	19 October 2006
Covering Letter		23 October 2006
Letter from Sponsor		
Letter of invitation to participant		

Continued

Document	Version	Date
GP/Consultant Information Sheets		
Participant Information Sheet: Receptionist Information Sheet *	1	19 October 2006
Participant Information Sheet: Nurse & Allied Health Professional Information Sheet *	1	19 October 2006
Participant Information Sheet: Patient Information Sheet *	1	
Participant Information Sheet: Practice Information Sheet *	1	
Participant Information Sheet: Practice Manager Information Sheet *	1	
Participant Information Sheet: Practice Pharmacist Information Sheet *	1	
Participant Information Sheet: Prescriber Information Sheet *	1	
Participant Consent Form		
Jonathan Dowell CV	1	25 September 2006
Interview Schedule	1	19 October 2006

\* Requires amendment

### Research governance approval

The study should not commence at any NHS site until the local Principal Investigator has obtained final research governance approval from the R&D Department for the relevant NHS care organisation.

### Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

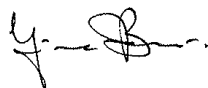
### Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

06/S1402/99

Please quote this number on all correspondence

Yours sincerely




**Dr Margaret A R Thomson**  
**Chair**

Enclosures: List of names and professions of members who were present  
Standard approval conditions  
Site approval form (SF1)

Copy to: Research & Innovation Services, University of Dundee  
NHS Tayside R&D Department

Continued



## Appendix 2: Audit Scotland indicators of prescribing quality

- Proton Pump Inhibitor (PPI) maintenance doses as a percentage of maintenance and treatment doses
- 2.5mg bendrofluazide as a percentage of 2.5mg and 5mg
- Single diuretics as a percentage of single and combined diuretics
- ACE Inhibitors per 1000 adjusted population per quarter
- Low dose aspirin per 1000 adjusted population per quarter
- Statins per 1000 adjusted population per quarter
- Hypnotics and anxiolytics per 1000 adjusted population per quarter
- Established antibiotics as a percentage of all oral antibiotics
- Amoxicillin as a percentage of amoxicillin and co-amoxiclav.

Taken from: Audit Scotland (2003) Supporting prescribing in general practice – a progress report. Auditor General for Scotland.

### Appendix 3: Poster



# **Research Project In XXX Health Centre**

- XXX Health Centre is taking part in a research project, run by University of Dundee, looking at prescribing in primary care.
- If you have an appointment you may be asked if the researcher can watch your consultation – the researcher is watching the Doctor not you – this will not affect the care you receive.
- It is up to you whether you take part or not.

**Researcher:** Miss Aileen Grant MSc BA(Hons), Community Health Sciences, University of Dundee.

## Appendix 4: Interview schedules

### Interview Schedule - GP

Why did you go into medicine?

What attracted you to (*name of practice*)?

What do you bring to (*name of practice*) from your past experience?

Where do you want to be in 5 years time?

Has the practice made any changes in your prescribing policy in the last 6 months?

What? Why? How?

Any changes in your prescribing for long –term conditions?

How does the practice formulate prescribing policy?

What prompts change?

Communication and decision-making

Quality and/or cost?

Describe a positive scenario - an example of doing well

Describe a scenario – when it has not gone so well

What motivates you?

What 3 things would you get into policy?

What is wrong with the current system?

What do you think is good about the system?

What influences your behaviour?

What is really important to you?

What legacy would you like to leave behind?

Did my presence have an impact on normal behaviour?

## **Interview Schedule – Practice Pharmacist**

### **Structured Questions**

How long have you been a practice pharmacist?

What is your background?

How long did you worked at the practice?

Do you enjoy working there?

What were your responsibilities?

Did your role and responsibilities change in your time there?

### **Exploratory Questions**

Does GP 1 or GP 2 come to you for advice? If so can you give me a scenario?

Why do you think Rosnish is the best?

What do you think other practices can learn from Rosnish?

What influences their prescribing?

How did you try and influence their prescribing?

What are your responsibilities at other practices?

How do you influence their prescribing?

What motivates you?

What would you like a PP's role to be?

What do you think is wrong with the current system?

What do you think is good about the system?

(Example from Rosnish practice this was adapted for the Haun).

## **Interview Schedule – Healthcare assistant/Senior Receptionist**

### **Structured Questions**

How long have you worked at the practice?

Have you seen many changes in that time?

Has your role changed as the GPs have changed?

Can you describe your role for me?

You have a lot of clinical and administrative responsibility has this always been the case or has your responsibility increased since GP 1 took over?

The GP seems to keep tight control but you have a lot of autonomy, would you agree with this?

Is a one month prescription for 28 days? Or per monthly calendar month?

### **Exploratory Questions**

Has the relationship with patients changed?

Where do you see the hub of the practice? Where is most information exchanged?

Do you think change is implemented quickly?

Why do you think Rosnish is the best for quality?

What do you think other practices can learn from Rosnish?

### **Triangulation Questions**

Double check information for repeat prescribing system and chronic disease management, and explore what she thinks about the model, in particular the reception part

## Appendix 5: Data-driven quality improvement in primary care; study two.

### **Introduction**

Developments in informatics and improvements in the quality of general practice electronic clinical data since the introduction of the Quality and Outcomes Framework (QOF) create new opportunities to routinely implement evidence-based interventions to change professional practice. This study part of a large programme of work which aims to create and test an evidence based quality improvement intervention for the safety and quality of prescribing. The research programme aims to design and implement innovative informatics tools to make existing primary care data more useful for quality improvement. The programme follows the MRC framework to develop and evaluate complex interventions. Part of the MRC framework recommends understanding the context in which the intervention will be delivered, so the aim of this study was to define the quality improvement and governance context and inform the design and components of the complex intervention.

### **Methods**

A purposeful sample of general practices was made by ranking practices within a health board by their responsiveness to current indicators of prescribing quality used by the respective health boards. Practices at the high and the low end were invited for interview. A GP and/or the practice pharmacist from 20 practices from NHS Tayside were invited for interview, 10 practices which had performed well and 10 practices which were ranked at the bottom end of the scale. 11 interviews were conducted with general practices in NHS Tayside, six with a GP and five with a practice pharmacist, as a GP and a pharmacist were interviewed from more than one practice, three high ranking practices and four low ranking practices were recruited.

## Appendix 6: Practice visit details

### Rubain practice visits

Date	Hours	Task
1.02.08	1	Recruitment of practice
12.02.08	9	Observation of reception & GP surgery (GP 2)
13.02.08	6.5	Observation of GP surgeries (GP 1 & GP 4)
14.02.08	9	Observation of GP surgery (GP 4)
15.02.08	6.5	Observation of GP surgeries (P & JF)
21.02.08	7.5	Observation of Practice Pharmacist cardiovascular clinic and observation with practice managers
25.02.08	8.5	Observation of GP surgeries (GP 1 and GP 5 - registrar) and reception
26.02.08	9	Observation of GP surgeries (GP 3) & (GP 5 - registrar)
28.02.08	5	Observation of GP surgery (GP 3) and Practice Pharmacist medication review clinic
29.02.08	8	Observation of GP surgeries (GP 4, GP 2 & GP 1) and observation of practice meeting
13.03.08	3	Observation with practice pharmacist
27.03.08	2.5	Observation of surgery with locum
28.03.08	2	Practice prescribing meeting
24.06.08	4	Observation with practice nurse, triage and asthma clinic.
<b>TOTAL</b>	<b>78.5</b>	

The coffee room and reception was observed during these visits at every given opportunity.



### Roshish practice visits

Date	Hours	Task
11.01.07	1	1 <sup>st</sup> meeting
16.01.07	4	Chat/informal interview with GP 1
25.01.07	4	Review practice documentation
27.01.07	4	Review practice documentation
1.02.07	1	Observation of clinical meeting
2.02.07	10	Observation of reception
7.02.07	4	Observation of Practice Pharmacist
20.02.07	3	Observation of CHP prescribing meeting
23.02.07	4	Observation district nurse in practice nurse role
6.03.07	8	Observation of surgery with GP 2
8.03.07	5	Observation surgery with GP 1
9.03.07	4	Observation surgery with GP 1
12.03.07	7.5	Observation of district nurse prescriber
13.03.07	8.5	Observation of foundation Doctor surgery. Observation of GP 1 and foundation Doctor visit to nursing home
14.03.07	4	Observation of surgery with foundation Dr.
16.03.07	4	Observation of surgery with foundation Dr.
27.03.07	8.5	Visit to nursing home with GP 1, observation of surgery with GP 1 and out for dinner
30.03.07	10	Observation of surgery with GP 1
12.04.07	3	Observation of surgery with locum
13.04.07	4	Observation of surgery with locum
18.04.07	6	Observation with Health care assistant
20.04.07	5	Observation of surgery with GP 1

08.05.07	10	Observation of surgery with GP 2
12.07.09	3	Observation of surgery with GP 1
<b>TOTAL</b>	<b>118.5</b>	

The coffee room and reception was observed during these visits at every given opportunity.

### The Haun practice visits

Date	Hours	Task
	1	Meeting with practice manager
06.06.06	1.5	Meeting with Practice Pharmacist
20.07.07	1.5	Meeting with GPs
08.08.07	6	Observation of reception and with IT administrator
10.08.07	4.5	Observation of reception
14.08.07	4	Observation repeat prescription administration
15.08.07	3	Observation of reception
22.08.07	8	Observation with practice pharmacist
04.09.07	4	Observation with COPD nurse
07.09.07	8.5	Observation of reception and Practice Pharmacist
11.09.07	5.5	Observation with COPD nurse, of practice meeting.
19.09.07	2	Observation with practice pharmacist
24.09.07	5	Observation of surgery with GP 3
27.09.07	7	Observation of surgery with GP 3
03.10.07	3	Observation with Practice Pharmacist
09.10.03	3.5	Observation of repeat prescription administration
10.10.03	3.5	Observation of meeting with community nurses and with Practice Pharmacist
16.10.07	9.5	Observation of meeting with community nurses and observation surgery with GP 6
17.10.07	7	Observation of surgery with GP 4 and observation with Practice Pharmacist
19.10.07	6	Observation with practice manager
22.10.07	1.5	Lunch with 2 practice pharmacists
23.10.07	4	Observation of surgery with GP 1
24.10.07	6	Observation of surgery with

		GP 4 and observation of surgery with Practice Pharmacist
26.10.07	3.5	Observation of surgery with GP 7
29.10.07	8.5	Observation of surgery with GP 5
31.10.07	4	Observation of surgery with GP 7
2.11.07	8.5	Observation of surgery with GP 4
5.11.07	5	Observation with Practice Pharmacist and meeting with other CHP Practice Pharmacists
7.11.07	2	Observation with Practice Pharmacist
9.11.07	9.5	Observation of surgery with GP 2
13.11.07	9.5	Observation of meeting with community nurses and observation of surgery with GP 2
14.11.07	9.5	Observation of surgery with GP 5
7.12.07	7	Observation of surgery with GP 1
10.12.07	6	Observation of surgery with GP 3
14.12.07	2.5	Observation of practice meeting with researchers and drug rep lunch
22.01.08	8	Observation of surgery with GP 6
23.01.08	2	Meeting with CHP Practice Pharmacists
20.02.08	3	Observation with Practice Pharmacist
14.03.08	2.5	Observation of practice meeting
<b>Total</b>	<b>196.5</b>	

The coffee room and reception was observed during these visits at every given opportunity.

Appendix 7: Tables with empirical supporting documentation for the practice prescribing models.

**Rubain practice prescribing model – Table with supporting empirical data.**

<b>Elements of the model</b>		<b>Supporting empirical evidence</b>
<b>Patient</b>	Patient pressure	<i>One patient had been suffering from her symptoms for less than 48 hours so the GP told her to rest and come back if symptoms did not clear by themselves. She did not get up from her chair and in the end was given a 'delayed prescription'. (Fieldnotes)</i>
	Patient's views	<i>A patient who was given a prescription for a new inhaler in her last consultation and returned as she did not like the new delivery system which spits out medication rather than old inhalation technique. The patient was prescribed her old inhaler. (Fieldnotes)</i>
	Patient's expectations	<i>A patient presented a list of medication she would like to be treated with. Her husband was a clinician. She was given the medication she requested despite them not being a generic preparation. (Fieldnotes)</i>
	Patient's experiences	<i>A consultation was observed where HRT had made such a dramatic difference to one woman's life she was against coming off the medication despite the health risks. (Fieldnotes)</i>
	Patient's circumstances	<i>A patient was suffering from a cold/flu and would not normally have been given an antibiotic but as her husband suffered from severe COPD the GP did not want an infection brought into the home so the prescription was given as a precaution. (Fieldnotes)</i>
<b>Prescribers</b>	Patient notes	<i>"Before the patient came in the room the doctor gave me a quick summary of their background whilst she read the notes. Most of the patients she seemed to know who they were and appeared to remember quite a lot</i>

		<i>about them, the information in the notes seemed to jog her memory.”</i>
	Prescriber experience	<i>The GP tells me that the other GPs (not the registrar) are more comfortable in what they are doing as they know what a drug does and what it doesn't. Just from experience they do not need to look so much information up. He goes on to tell me, they are more comfortable in what they are doing and will step outside protocol if they feel it is necessary, but this decision is based on experience. (Fieldnotes)</i>
	Prescriber preferences	<i>The patient has asked for some Ibuprofen gel. The GP tells the patient they are supposed to prescribe transvasen cream but she does not like it so she will prescribe the patient the more expensive cream. (Fieldnotes)</i>
	Medical training	<i>As one GP commented “what you prescribe depends on where you are in your career.” When this GP first started she was more familiar with hospital medication but said as time goes on you get more confident and you learn yourself and you try different medications. (Fieldnotes)</i>
<b>Continuity of care</b>	Relationship with the patient	<i>During the consultation the GP tells me he has known this young lady all her life, as a patient but also through the church. He asks after her family. She tells him the baby has a tooth coming through and her sister is getting little sleep but that their mother had been taking her other child, to give her a break. (Fieldnotes)</i>
	Knowledge of the patient	<i>This patient came in and was very concerned about the pain at the bottom of her head/neck area; the Doctor examined her and told her he thought it was some ligaments. She asked him about her eyes as well and if they were related, when she is describing these she is going into a lot of detail about what she was</i>

		<i>doing, the type of pain, how long it lasts and asking the Doctor lots of questions. He turns to me during the consultation and says this lady has had a head hemorrhage in the past. This explained why she was anxious and really wanted to understand. (Fieldnotes)</i>
	Perception of the patient	<i>Before the patient entered the consulting room Dr X said 'Oh, no!' This patient was seeing Dr Y for a while but now she keeps coming to see me, she is always in pain and is a difficult person, she moans so much and doesn't really take to leaving without something so you end up just giving her pain killers, I know that is bad.' (Fieldnotes)</i>
	Shared decision making	<i>The patient was if he would prefer liquid or tablets. (Fieldnotes)</i>
<b>Influences</b>	Guidelines	<i>The managed clinical networks (MCN) give local advice. The practice pharmacist had waited to act on the new SIGN guideline until he received MCN advice. Due to the volume of information to be discussed at prescribing meetings the practice pharmacist aims to discuss this guideline over 3 meetings. In the first meeting he would like some decisions made on the way forward. (Fieldnotes).</i>
	CHP	<i>The practice pharmacist informs me of previous CHP led projects they have run in the past; repeat prescribing system, simvastation, fluoxetine, and NSAIDs. (Fieldnotes)</i>
	Secondary care	<i>This patient has polymyalgia and recently had an angioplasty and was in for her results. She admitted she was feeling sore herself. She had been at a 50th birthday party, and although she had nothing to drink she admitted she did vigorously jive to 4 or 5 songs. She increased her dose herself after this event from 5 to 6. The Doctor checked the consultant's recommendations on the computer and it said if she has a flare up increase by 2. The patient</i>

		<p><i>admitted this but said she wanted to see if she could get away with one but no, she was sore. They had a discussion and agreed between them to increase the steroid dose by 2 for a month, and then down by 1 for a month and then down again by 1 for a month. This was the Doctor's suggestion and she agreed.</i></p> <p><i>(Fieldnotes)</i></p>
	Cost	<p><i>The practice has recently carried out an audit on their fluoxetine prescribing. This was a CHP driven initiative, which was supported by a financial incentive. All practices in this CHP were below the health board and Scottish average.</i></p> <p><i>(Fieldnotes)</i></p>
	Drug representatives	<p><i>"....they used to be more of an influence in the old days. They don't tend to influence things so much these days because we always tell them that for any change in our prescribing it would have to be discussed with (practice pharmacist named) and so they should really speak to (practice pharmacist named). You do tend also to find that, they tend to all be promoting the same type of medicine anyway. They're not often coming along with a completely new thing, it's just an alternative. Proton pump inhibitor, an alternative, serotonin uptake inhibitor, so it's not all that often they come along with a completely new product and then you quite often find that the new product hasn't even been approved for use in Scotland anyway, or in (health board named)"</i></p> <p><i>(GP 1 interview, Rubain).</i></p>
<b>Other practice staff</b>	Practice nurses	<p><i>The practice pharmacist informs me the practice nurses are the main drivers of respiratory prescribing.</i></p> <p><i>(Fieldnotes)</i></p>
	Community nurses	<p><i>One of the community nurses was observed hanging around the coffee room. She was chatting to the</i></p>



		<i>receptionists and a practice manager but kept looking at the door. This went on for about 5 minutes. Once Dr X appeared it became clear they she was waiting to talk to him about a patient. She asked him to go and visit the patient and also to prescribe xxx. (Fieldnotes)</i>
	Receptionists	<i>An example of this was observed in the coffee room when two of the GPs were talking about a patient and her care issues when one of the receptionists told them one of her neighbours goes in regularly and checks on her. (Fieldnotes).</i>
<b>Practice pharmacist</b>	Practice based data	<i>In preparation for the practice prescribing meeting the practice pharmacist has identified the prescribing indicators where there is room for improvement. The practice pharmacist is now looking at all patients prescribed this medication in the practice system. (Fieldnotes)</i>
	PRISMS data/prescribing reports	<i>The practice pharmacist presented data on one indicator showing the practice was an outlier. Prescribing simvastatin 10mg was considered as poor prescribing by the indicators used in the CHP report and the presented quarterly report indicated the practice was prescribing a lot. The GPs argued that if the patient was responding well and was stable why should they increase the dose. However, the evidence behind the indicators suggests that 10mg was not effective. This sparked discussion and debate. (Fieldnotes)</i>
	Practice IT system	<i>The GP had received a letter from a consultant in secondary care telling him to prescribe xxxx but when the GP had gone to prescribe this a hook on the computer had told the GP that the drug was not licensed for the patient's condition. The GP was delighted the computer system had flagged up such an error and was informing the practice pharmacist the benefits of the current IT system. (Fieldnotes)</i>

<b>CHP</b>	CHP evidence filtered into practice by the pharmacist	<i>"...We have meetings with (practice pharmacist) once every four weeks, the last Friday of the month. First of all, we look at, because of our prescribing, a monthly update in terms of how our prescribing compares with the CHP average and so on and he (practice pharmacist named) recommends changes to our prescribing patterns..." (GP 1 interview, Rubain).</i>
<b>Communication</b>	Shared decision-making	<i>The practice debated how they could assess the risk factors, such as the various risk factor calculators available on websites and computer systems as to the most appropriate. They also discussed how they measure cardiovascular risk and if there were improvements that could be made when the nurses are taking the clinical recordings. It took the three prescribing meetings to discuss and debate all the relevant information and agree on their revised practice policy. (Fieldnotes)</i>
	Practice pharmacist filtering evidence into the practice	<i>I asked what prompted the change on the prescribing formulary. The practice pharmacist told me the guidance for clopidogrel has changed. Patients should now only be taking clopidogrel for 3 months as oppose to the previous guidance of one year. It costs £400 per year so there is a financial implication as well as a quality issue. (Fieldnotes)</i>

The model acknowledges potential influences on the prescriber so there is not supporting evidence for all influences. Such as the health board is a potential influence but this was not observed, all potential health board influences were filtered into the practice through the CHP and practice pharmacist. Also drug companies are a potential influence however their influence was through drug representatives.

**Rosnish practice prescribing model – Table with supporting empirical data.**

<b>Elements of the model</b>		<b>Supporting empirical evidence</b>
<b>Patient</b>	Patient pressure	<i>This patient had just suffered a mild stroke. It was visible at the back of the brain but the patient seemed fine. The GP prescribed Preistane and I asked why, he said because the patient had asked for it by name. (Fieldnotes)</i>
	Patient's views	<i>This patient had high blood pressure and the GP said he would like to prescribe something for it. The patient said he does not like to take tablets and thought there may be a white coat element as well. (Fieldnotes)</i>
	Patient's expectations	<i>This patient presented at the surgery because she had been suffering from a headache for about 3 hours. She had called NHS 24 and expected her GP to know about this phone call. (Fieldnotes)</i>
	Patient's experiences	<i>This patient had fallen and had severe bruising. After an examination, the GP tested his urine and there were no signs of a kidney infection. The GP told the patient to go for an xray and filled in a short form which he handed to the patient. The patient informed the GP he had tried paracetamol and ibrophen and it was not touching the pain. The GP prescribed him tramadol. The GP informs me that as the patient had tried paracetamol and ibrophen he had to prescribe something and would have normally prescribed codyradamol but because this patient works offshore on the oil rigs he cannot come back to try something else if it is not strong enough. The GP said it was obvious he is in great pain so he felt he had to give him a strong analgesia. (Fieldnotes)</i>
	Patient's circumstances	<i>The CHP prescribing lead was interested in why the practice was prescribing IRN testing strips. The</i>

		<i>GP explained when he took on the practice the patient in question had little time left to live. So the GP encouraged him to enjoy his life and live a little. The patient was living in a caravan so he decided to take off to Spain during the winter. Here, years later and the patient is still here and very stable on his warfarin. The GP enquired and found you can prescribe IRN strips, which allows this man to manage his own condition. (Fieldnotes)</i>
<b>Prescribers</b>	Patient notes	<i>The GP informs me despite knowing the regular attenders at the practice well, he still relies on the notes, especially for medication review. (Fieldnotes)</i>
	Prescriber experience	<i>“the longer you are qualified the more you move away from formularies.” (Fieldnotes)</i>
	Prescriber preferences	<i>The CHP prefer GPs to prescribe Fluoxetine as a first line antidepressant but this practice tends to prescribe Citalopram because of the length of time it takes to have an effect. The lead GP told me Fluoxetine takes 3 to 4 weeks where Citalopram takes 7 to 10 days, and feels it usual takes time for patients to present with their symptoms so when people have been low and depressed for a long time already you can start to make a difference more quickly with Citalopram. (Fieldnotes)</i>
	Medical training	<i>I ask the lead GP about the influence of his medical training on his prescribing behaviour. He tells me this is the basis of his knowledge but as time moves on experience and new evidence influence his behaviour more. (Fieldnotes)</i>
<b>Continuity of care</b>	Relationship with the patient	<i>“They discuss the patient that was admitted to hospital this morning.....Whilst they are in the waiting room the receptionists find out that the man’s condition had deteriorated whilst XX was on holiday but they did not want to see a</i>

		<p>locum, so they had waited until XX had got back before they called. Then they were not forceful about getting a visit or appointment with XX. XX was not amused, he was annoyed more than angry, saying that this man could easily die now. Why did they not come in and see the locum?" (Fieldnotes)</p>
	Knowledge of the patient	<p>A patient was very distressed. She said she had had trouble sleeping. The GP starts by asking her what is wrong. The patient goes on and tells her what seems to be a multitude of problems which the GP seems to be informed about: well certainly informed about the on-going problems, not so much the later ones (I could see her struggling to remember all the family details). (Fieldnotes)</p>
		<p>The GP tried to educate her about her risk factors and kept checking she understood what she was being told. She understood her risk factors but was prepared to take the risk as she was scared of her menopausal symptoms returning. The GP went back through the information emphasising her risk factors but she was still very resistant so the GP chose to leave this issue till her next consultation. The patient was also suffering from high blood pressure and gastric problems so would be back in the not too distant future. (Fieldnotes)</p>
	Perception of the patient	<p>"Whilst observing the second GP at the practice, the medical student came in to update the GP on his consultation with the patient. The GP was not happy that the medical student had sent the patient away without having seen her first. The GP explained to the medical student that this lady is not likely to be complaining, if she has come then it will be something worth consulting about. The medical student had told the patient to buy a topical painkiller</p>

		<p><i>and a strap. The GP explained that this lady gets free prescriptions and they give out supports to the patients at the surgery for free, and the lady would have known this, 'what will she think'. The GP went on to explain that topical painkillers are expensive and that she would have given her a prescription for this. The GP knew how frequently this patient consulted, deeming each visit worthwhile, also demonstrating a knowledge of the patient's financial circumstances, showing that this would influence whether a prescription is written or not."</i> (Fieldnotes).</p>
<b>Influences</b>	Guidelines	<p><i>New guidelines from the British Hypertension society have been published recently. The CHP distributed laminated copies of a flow diagram. This was copied and placed on the back of the doors of the consulting rooms. (Fieldnotes).</i></p>
	Research / Journal articles	<p><i>"Well is it just part of the job, it is good reading really, I scan the titles, and chose what I want to read, I don't read it cover to cover, but if there is something relevant to what I do, with topics, that, .....I used to really.....it is just part of keeping up to date."</i> (Fieldnotes)</p>
	CHP	<p><i>The practice pharmacist opens a letter from the CHP. They are questioning the efficacy of two drugs. The pharmacist tells me she knows the two patients and why they are on it. One patient had been transferred from a practice down south and it was clear from her notes, she had been tried on something else and it had not worked. Therefore the pharmacist said she was not going to change her medication. The pharmacist said it was the same with the other patient, 'they are happy with their medication so why change it'. She told me the point is to ensure</i></p>

		<i>no more patients are started on these medications. (Fieldnotes)</i>
	Secondary care	<i>The GP prescribed Metformin for a patient who was overweight and had polycystic ovaries(PCO). After the consultation I asked about this. The GP explained that Metformin has been prescribed for the past few years by gynaecologists. This patient has been trying hard to lose weight with little success so her PCO could be why she is not losing weight, so it is a good excuse to try it and see how she gets on. (Fieldnotes).</i>
	Cost	<i>The CHP pharmacy lead and the lead GP for the CHP paid a visit to the practice. The pharmacist commented that they are trying to get round most of the practices but at the moment they are focusing on the outliers. During the meeting the pharmacist went through the BNF by chapter and picked out drugs where he thought they could make savings and justified why. The pharmacist was polite explaining drugs had come off patent, and giving examples of where it is much cheaper to prescribe capsules rather than tablets. He GP accepted these recommendations. (Fieldnotes)</i>
	Drug representatives	<i>The second GP at this practice sees drug reps. In the coffee room at lunch time there was a lunch provided by a drug rep. The rep was just laying out all the food when I arrived. The second GP at this practice arrives just after me. They exchange polite pleasantries very briefly and then the rep tells her about new asthma drug. He seems to give her a brief run down, some leaflets and pens and then leaves again. The rep did not appear to have been in the practice for very long. (Fieldnotes).</i>
<b>Other practice staff</b>	Practice nurses	<i>This practice does not have a practice nurse. The health board release the community district nurse</i>

		<i>for 2 hours a week and the health visitor for 2 hours a week, which the practice pay for. (Fieldnotes)</i>
	Community nurses	<i>The foundation doctor comes and chats to the lead GP about a patient. The patient was a young lady who has recently had a baby. This lady had suffered preeclampsia and from another condition I did not catch. The patient is on a lot of medication from the hospital which they discuss and also a prescription the GP started. The midwife had told the GP this lady had mastitis so he wrote a script without consulting with the patient. (Fieldnotes)</i>
	Receptionists	<i>The lead GP tells the researcher "The receptionists only tell me who is related to who and the full story once I have put my foot in it." (Fieldnotes)</i>
<b>Communication</b>	Shared decision-making	<i>All the practice staff are present at this meeting. They are discussing how they are going to manage and hopefully cope with the transfer of GPASS to Vision. The lead GP suggests they ask to have their training brought forward and they all agree. They make comments about practicing before the system goes live. (Fieldnotes)</i>

The model acknowledges potential influences on the prescriber so there is not supporting evidence for all influences. Such as the health board is a potential influence but this was not observed, all potential health board influences were filtered into the practice through the CHP and practice pharmacist. Also drug companies are a potential influence however their influence was through drug representatives.



**The Haun practice prescribing model – Table with supporting empirical data.**

<b>Elements of the model</b>		<b>Supporting empirical evidence</b>
<b>Patient</b>	Patient pressure	<i>This patient was an alcoholic and came in asking for more diazepam and dihydrocodeine. Dr X said no, and went on to say she gave him enough diazepam on Friday and this was only Wednesday and he has none left, so if he cannot take them properly she is not going to give them to him. He then started going on about his chest and his cough and Dr X told him that his lungs were clear but he was still going on about needing antibiotics and telling her which antibiotics he wanted, Dr X said that she would only give him amoxicillin..he threw a tantrum and stormed out. (Fieldnotes)</i>
	Patient's views	<i>This patient said she was struggling to cope with everything life was throwing at her at the moment. She said she wanted something to perk her up every now and again when she was having trouble sleeping or was having a particularly bad day. Dr X suggested anti-depressants and diazepam but highlighted the dependence and suggested counselling. The patient made it clear she did want to go onto antidepressants but liked the idea of diazepam. Dr X said she had never had an opiate based medication before so she was just going to give her a very low dose and she how she gets on with it. (Fieldnotes).</i>
	Patient's expectations	<i>This patient has ME and does not want to take her medication. She wants to go on a trip to Edinburgh and is looking for the GP to say it is OK. He took this opportunity to try and gently persuade her to start on some medication. (Fieldnotes).</i>
	Patient's experiences	<i>The GP explains this lady has had terrible depression in the past. She is fine now but likes to come in every</i>

		<p>6 months to make sure she is OK. The lady gets her tests done and when she gets her results back she is fine but the GP explains she needs this reassurance from the GP.</p> <p>(Fieldnotes)</p>
	Patient's circumstances	<p>A patient comes in and starts talking. It is hard to establish why the patient is here due to the familiarity between the GP and patient. Straight away the GP gives him a prescription for diazepam and citalopram, without much communication about this. The patient complains of sore ears and the GP takes a look and says 'you have ear wax. I would not normally prescribe ear drops but considering your situation. Through the consultation it becomes clear this patient is homeless. He had no permanent address. (Fieldnotes)</p>
Prescribers	Patient notes	<p>This patient came into the consultation room saying that he has constantly been getting tonsillitis. Dr X examined him and took a swab. He said he didn't have tonsillitis on this occasion as he does not have mucus on the back of his tonsils. Dr X checked his notes and gave him a prescription for clarithromycin. The GP then turns to me and said he gave it to him because he had received this before although it may not have been the cheapest.</p> <p>(Fieldnotes)</p>
	Prescriber experience	<p>"what you prescribe depends on where you are in your career. When I first started I was more familiar with hospital medication but as time goes on you get more confident and you learn yourself and you try different medications." (Fieldnotes)</p>
	Prescriber preferences	<p>"..I mean things are definitely habitual, I always prescribe a particular drug, I know those off the top of my head, why would you prescribe an alternative that you didn't know so much about" (GP 1 interview, the Haun).</p>
	Medical training	<p>In between consultations I tell the</p>

		<p><i>GP I only see her using the BNF and patient notes during the consultations. I ask her if there are any other influences and she told me experience. I asked her if her medical education has an impact and she said “not so much these days, it is more past experience”.</i></p> <p>(Fieldnotes)</p>
<b>Continuity of care</b>	Relationship with the patient	<p><i>“It really annoys me here, we have patients who have been in to see one Doctor and they need to come back for another consultation and it is not their fault they are offered the next available consultation and they can end up seeing a few different GPs, you go back through the story, you get a different version, you have to interpret the other GPs’ thoughts.”</i></p> <p>(Fieldnotes)</p>
	Knowledge of the patient	<p><i>“....this helps you in your decision-making; you can make that intuitive leap quicker. You know more about them and what they are saying, how they present themselves....”</i></p> <p>(Fieldnotes)</p>
	Perception of the patient	<p><i>A patient had consulted with the GP complaining of hot sweats. The patient had consulted recently and the doctor had done a blood test but the results had not shown anything. The GP said she would refer the patient up to the hospital. The patient made a comment when leaving the room I didn’t quite catch. Once the patient left the GP informed me she is a hypochondriac and had been consulting with one of the other GPs in the practice but this GP had got to the end of his tether with her and had refused to give in to her. The GP goes on to explain the patient has now decided to come and see her.</i></p> <p>(Fieldnotes)</p>
<b>Influences</b>	Guidelines	<p><i>“Dr X told me his prescribing was shaped by new evidence, through new guidelines coming out. I asked about journals and he said no, he does not read them anymore as he does not have the time. He went on</i></p>

		<p><i>to say he used to when he was younger but he said some of the evidence there is flawed and GPs do not have the skills to critically appraise journals.” (Fieldnotes)</i></p>
	CHP	<p><i>In a practice prescribing meeting the pharmacist is trying to filter CHP recommendations into the practice. There was only 2 GPs present and one practice nurse. The first request the practice pharmacist makes was to move patients from esomeprazole to another PPI, the GPs agreed although one GP did comment saying, “I think we only have patients on it who need to be on it.” The second request was to move patients from one statin to another. Dr Y was totally against it. He said “they will have another initiative soon where they will want to move it again. The amount of work that is involved calling patients in, changing their medication when they are happy and stable on, to something which will just confuse them and require them to come back to the surgery more often till we get them stable again for the sake of saving a few pennies. No! They have no idea how difficult it is to get a patient to take 5 different types of medication without changing it. They sit in their ivory tower.” (Fieldnotes)</i></p>
	Secondary care	<p><i>The practice pharmacist conducted an audit of their PPI prescribing and found they have a high number of patients on the expensive PPI. As the GP helps the pharmacist identify patients for review she says “secondary care have definitely influenced some of these patients.” (Fieldnotes)</i></p> <p>Or</p> <p><i>“The only thing that changes for me is if a new drug comes in and the consultants at the hospital are telling</i></p>

		<p><i>me to use it because they think it is good and they get feedback from other professionals and consultants that it is good and then I'll start using a new drug. I don't tend to use it off my own back, I tend to use it from recommendations from other people and doctors and consultants.</i></p> <p><i>So the only changes in my prescribing are basically new drugs"</i> (GP 2 interview, the Haun).</p>
	Cost	<p><i>"...the older I get, the more times I see that prescribing is mucked around, to try and save a few pounds here and there and the more I see patients, who get upset by having their drugs changed for no good reason, I tend to not even worry about the costs anymore."</i> (GP 2 interview, the Haun)</p>
	Drug representatives	<p><i>This is the first time I have seen the rep being used as a source of advice and I asked the practice pharmacist about this after the meeting. She said they can be a good source as they know a lot about their drugs but their answers have to be interpreted with caution "it is not what they tell you, it is what they don't tell you" she commented. (Fieldnotes)</i></p>
<b>Other practice staff</b>	Practice nurses	<p><i>After a consultation has finished and the patient has left the room the practice nurse knocks on the door. She informs the GP of the patient she has in with her and asks for a prescription for XXX. The GP prints and signs the prescription without really asking many questions. (Fieldnotes).</i></p>
	Community nurses	<p><i>The health visitor came into the room where the receptionist was processing repeat medications. The health visitor asks for a prescription and also asks for it to be placed on repeats. This medication has not been authorised by a GP. I ask the receptionist about this and she said they are only allowed to print scripts and place medication on repeat if a district nurse or health visitor asks.</i></p>

		<i>(Fieldnotes)</i>
	Receptionists	<i>I return to observing the repeat prescribing system. I tell the receptionist I found it interesting how many decisions regarding prescribing they make. She told me they do not really make any decisions. They quickly check the notes and print the script and then highlight any potential issues on the right hand side of the script. It is the doctor who makes the decisions. She tells me if the GPs do not agree with her decision to print the prescription they can delete it from the system.</i> <i>(Fieldnotes)</i>
<b>Practice pharmacist</b>	Practice based data	<i>The practice pharmacist has a pharmacy technician in with her today running audits. She is looking at specific medications to see if there are any interactions. The practice pharmacist tells me she is not skilled enough to look at complex interactions. She is looking at NSAIDs, she checks to find out why they are on it, are they ordering it regularly, are they on any disease modifying medication, have they been prescribed any gastric protection, are they over 75 or at risk of heart disease. The recommendations by the technician for to one of the GPs to check and then make any appropriate changes.</i> <i>(Fieldnotes).</i>
	Advice on individual patients	<i>“...people who are on drug interactions or side effects from the drugs, she is very good at, if we’ve got queries about drugs or dosages or interaction she’s very good at that.” (GP 1 interview, the Haun)</i>
<b>CHP</b>	CHP evidence filtered into practice by the pharmacist	<i>The practice pharmacist informs the researcher during observation “Our strength lies in being part of the team and not the CHP. If we harp on too much about the CHP initiatives we could be perceived as an outsider. We have worked hard at the culture to be members of the primary care team, but yes we are employed by the</i>

		<i>CHP. Part of our role with the CHP is cost-effectiveness as well as clinical work and this has to be done to justify our salaries.” (Fieldnotes)</i>
<b>Communication</b>	Shared decision-making	<i>The practice pharmacist goes on to tell me they have good communication. She has a prescribing meeting with Dr X where she raises the prescribing issues she has and Dr X helps her refine the question and then she emails it round asking yes or no for the target area. The other GPs usually reply back and say ‘send me the list of patients’, or ‘yes fine, but exclude X, Y, Z’. (Fieldnotes)</i>
	Practice pharmacist filtering evidence into the practice	<i>The practice pharmacist tells me she had a prescribing meeting with one of the GPs but as there was nothing to discuss they just had a coffee. (Fieldnotes)</i>

The model acknowledges potential influences on the prescriber so there is not supporting evidence for all influences. Such as the health board is a potential influence but this was not observed, all potential health board influences were filtered into the practice through the CHP and practice pharmacist. Also drug companies are a potential influence however their influence was through drug representatives.

## Appendix 8: From data to interpretation: an example of process of analysis.

Data was collected primarily by typing fieldnotes. To keep the researcher's views/opinions/thoughts separate from the data, the researcher wrote these as memos which were attached to the fieldnotes in Atlas.ti.

The section below gives an example of the analysis process. This section is not intended to be comprehensive but to illustrate how the researcher carried out her analysis. Thus this section does not start at the coding stage and does not illustrate every thought/idea and finding in this process.

### **The macro/micro divide**

During an interview with a GP from the Haun, the doctor mentioned the practice did not feel strongly about consistency in their prescribing behaviour. *"So it can be quite difficult to always stick to a formulary anyway. But I say it's something I thought other practices have, this very tight..., should it be something we should be looking at? But we've never kind of done anything about it. I don't think anybody feels particularly strongly about it"* (GP 1 Interview, the Haun). The researcher went through all the fieldnotes to search for evidence of this claim.

The researcher found some evidence in her fieldnotes. This came from a discussion with the practice pharmacist in the Haun after a prescribing meeting. *"The practice pharmacist explained it is difficult to get agreement for changes to prescribing from all the GPs due to so many of the GPs working part-time. The practice pharmacist explained she has to go ahead with audits and changes with agreement from only two or three GPs (there were two GPs in attendance at the meeting observed)"* (Fieldnotes, the Haun).



The researcher felt these examples demonstrated a lack of value of consistency in their prescribing behaviour. As the researcher was carrying out her analysis in Atlas.ti she coded these pieces of text 'consistency' and linked them to her 'values' memo. Memos were used by the researcher to collect ideas and thoughts linked to the data. Memos provided opportunity to develop ideas, and to then explore these ideas in the data already collected and the data still to be collected.

Data recording or coding in the practice IT system was also related to consistency. The nGMS contract had put incentives in place to improve the quality of the data in general practice IT systems and for the Haun an important part of this was ensuring consistency in data recording. At the time of observation *"the practice had employed a retired nurse to code their diagnosis and prescribing data. The nGMS contract covers a number of disease areas so the practice had organised themselves to make each GP a lead of one or more disease areas. These GPs had decided on the codes which were to be used and this information was placed on notices in each office"*.

The researcher coded this data consistency and added to the 'values' memo. The researcher felt this showed the practice was moving towards consistency in their data recording. Further evidence was found from Rosnish practice.

Much of the consistency data was also indexed under another code. It was apparent from these pieces of data that consistency was related to the practice formulary, practice pharmacist, prescribing meetings, practice organisation, IT system and practice values.

At this stage the researcher was starting her field work in the third practice. Through this consistency analysis she had a heightened awareness to the ‘consistency’ concept and the related codes.

The researcher could see the practice IT system was important for maintaining consistency in Rubain’s prescribing behaviour. Rubain used pop-ups when prescribing to remind GPs of the practice formulary. Through her period of observation in Rubain the researcher was able to collect data related to the practice formulary, IT and consistency. More importantly, the researcher was able to explore the practitioner’s thoughts/ideas/values towards the pop-ups and consistency in prescribing behaviour. This gave material for the ‘value’ memo. It became clear the GPs in this practice saw value in these pop-ups (referred to by the practice as hooks) for drugs they prescribed less frequently.

The extract from fieldnotes explains some of this point. The quote from the interview carried out with this GP explores this point further.

*“A GP explained without the hooks the GPs were left to give a reasonable approach but now the hooks tell them exactly what to prescribe. For prescribing such as smoking cessation and the detoxification of alcohol this GP felt there could be wide variability in prescribing and inconsistencies in prescribing”* (Fieldnotes, Rubain).

This issue was explored in the GP interviews. The extract below shows the practice saw value in the pop-ups for medication they prescribe less frequently.

*“But you can’t be ... you do become familiar with common things in common and you do become familiar with what you use commonly but it is useful for the drugs you prescribe less frequently” (GP 2 Interview Rubain).*

An important part of valuing the practice formulary, consistency and the pop-ups was being involved in the prescribing decision-making process. This was an idea the researcher had been exploring in her memos but it was not until the interviews that this idea was confirmed.

*“I would say yes, you know there is the sort of collaborative decision making seems to have a lot more strength to it than you know giving an edict from a group” (GP interview 2, Rubain).*

The GPs had been part of the decision-making process of which drugs to include and exclude in the formulary. These decisions had been made in prescribing meetings chaired by their practice pharmacist. This also gave material to add to the ‘values’ memo but also showed a link between the formulary, practice pharmacist, communication and shared decision-making.

*“I would try and follow the practice decision which is formulated at these meetings and there’s obviously, usually influenced by what Kevin says. I think it’s handy having a meeting. If you want ownership of a decision then it’s the best format, I think, is to have a meeting where everyone can turn up and usually as many people turn up as can, unless of course, you’re on holiday or ill or whatever and then you discuss it” (GP 1 Interview Rubain).*

As the researcher was building on the consistency analysis she was also working on other ideas and concepts which were related; communication and the role of practice pharmacist. Rubain engaged in large amounts of face-to-face communication. This had been similar to the behaviour in the first practice observed, Rosnish. Coding the fieldnotes collected in Rubain the

researcher was using codes under the ‘communication’ concept; ‘formal communication’ and ‘informal communication’. Formal communication referred to practice meetings and informal communication referred to discussions in the coffee room and the corridor, essentially unplanned conversations. Initially, the researcher noticed that practitioners were talking about individual patients and specifics of their situations during the informal conversations. It was only whilst observing Rubain’s prescribing meetings the researcher came to notice they were making population based decisions in these meetings. If an individual patient was mentioned in a prescribing meeting this was anecdotally to illustrate a point. After recognising Rubain was making population based prescribing decisions the researcher re-visited her fieldnotes and memos from Rosnish and the Haun.

The researcher found evidence in her fieldnotes of the pharmacist in the Haun explaining the difference in the way pharmacists and GPs think.

*“The practice pharmacist explained to me the difference between a GP and pharmacist is the way they think. She explained that GPs think about the single patient as they deal with patients individually whereas a pharmacist in this role thinks in whole populations”* (Fieldnotes, the Haun).

The practice pharmacist in the Haun had also referred to the two different types of role carried out by the practice pharmacists; strategic and operational.

*“The practice pharmacist referred to practice pharmacists having two different types of role. She described the operational role as ‘day to day things, day to day communications’ and the*

*strategic role as ‘doing policies or audits or extra, getting involved in meetings and other things’” (Fieldnotes, the Haun).*

This had helped the researcher organise her data coded under practice pharmacist and link the researcher’s analysis of the practice pharmacist roles to formal and informal communication, and population based and individual prescribing decision-making.

Realisation of the practice pharmacist roles being operational and strategic, communication being formal and informal and the different types of prescribing decisions, population and individual patient decisions helped the research recognise the macro/micro prescribing divide. As a result the researcher explored these ideas and concepts in memos labelled ‘macro’ and ‘micro’ prescribing.

The researcher at this point the researcher was also looking to the literature at possible theories to help explain her data. Prior to her realisation of macro and micro prescribing decision-making the researcher had not come across any theories which helped her gain greater explanatory power of the ideas she was developing.

The researcher was working with the macro prescribing idea. With macro prescribing being described as population based, strategic decisions influenced by EBM and clinical governance. Sheaff *et al*’s work on ‘soft governance’ helped the researcher understand the influences on macro prescribing decisions. ‘Soft governance’ highlighted to the researcher that practices are independent businesses and cannot be manipulated by traditional command and control mechanisms therefore health boards use persuasive techniques. Despite being aware the practice practices were employed by the CHP the researcher had seen them as part of the

practice team. Sheaff *et al.* helped the researcher understand the CHP prescribing indicator report and practice pharmacists were persuasion mechanisms designed to appeal to professional values. To the researcher a clear link was then made to 'practice values'. Through exploring by revisiting codes and memos in light of these changes it became clear CHP prescribing indicator report, the health board formulary and practice pharmacists all fitted well under soft governance which in turn sat well under macro prescribing. Also it was clear practices only engaged with the soft governance mechanisms they valued. The practice pharmacist had previously been important under the concepts of practice organisation and communication through being part of the practice team. By reorganising the data under macro prescribing and soft governance the researcher could see practice organisation and communication were impeding factors to the practice pharmacist engaging with macro prescribing.

At this stage the researcher was confident the practice values influenced their engagement with CHP soft governance mechanisms, consistency in prescribing behaviour and their practice organisation (including communication strategies).

## Appendix 9: Conceptual differences between the central concepts of the thesis.

In order to aid the reader's understanding of the central concepts of this thesis a table has been provided below which illustrates the conceptual differences between macro and micro prescribing decision-making.

The following paragraphs discuss the relationship between these two concepts and prescribing mindlines.

### *Distinctions*

	<b>Macro prescribing</b>	<b>Micro prescribing</b>
<b>Type of decision</b>	Practice policy decision on a clinical population	An idiosyncratic decision about an individual patient
<b>Who makes the decision?</b>	All clinical staff	Individual GP and patient
<b>Where is the decision made?</b>	In prescribing meetings	In consultations
<b>How is the decision made?</b>	Considering the research evidence in light of the average patient and one disease	Considering the individual patient's circumstances, preferences, views and if necessary other conditions.
<b>What are the influences?</b>	EBM, clinical governance, practice organisation and systems, communication strategies.	Prescribing mindlines * and continuity of care

**\*Prescribing mindlines** - The GP's prescribing decision-making at the micro prescribing level was influenced by prescribing mindlines. Prescribing mindlines are a personal prescribing formulary. These prescribing mindlines were developed from knowledge and experience. GPs relied on social networks to update these prescribing mindlines, such as their colleagues, secondary care, prescribing meetings and practice pharmacist.

### **Relationship**

Macro prescribing decisions were made in practice prescribing meetings. Evidence based medicine and clinical governance was filtered into the practices and discussed at these

meetings. In these discussions GPs would share their views, opinions and anecdotal stories about individual patients. Through these discussions GPs would share their values and experiences, and come to develop and reinforce shared values and the practice identity. Decisions were made about what to prescribe to the average patient in light of the evidence and their practice values.

Micro prescribing decisions were made in the consultation between the GP and an individual patient. Micro prescribing decisions required GPs to interpret macro prescribing policy using their clinical judgement and experience, in light of a patient's preferences, values and circumstances. During consultations with patients GPs did not look up information but relied on their knowledge and experience. This knowledge and experience had been developed into personal formularies, termed prescribing mindlines. The GPs relied on social networks to update these prescribing mindlines, such as their colleagues, secondary care, prescribing meetings, their practice pharmacist and through consultations with patients.

GPs internalised some of the information they receive at macro prescribing meetings. Through their experience or the experience of others, GPs would learn more and the information and/or the medication may slowly become part of their prescribing mindlines.

Prescribing mindlines were more complex than practice formularies or macro prescribing policy. Mindlines were developed from experience, looking after patients where medication was initiated in secondary care and from interactions with colleagues. Mindlines' have also been referred to as personal formularies to help the reader understand what the author has meant by mindlines. Essentially, mindlines are a group of drugs the prescriber knows well and from which they are most likely to prescribe. These mindlines were updated and revised from



informal, but trusted sources such as colleagues and hospital specialists. GPs viewed their colleagues as an important source of information and would share experiences and ask for advice or their opinion. These conversations tended to be informal and patient specific, often considering more than one disease and the individual patient's circumstances and views. These conversations were an important way of sharing, validating and modifying values and norms, and for the development of shared mindlines.

EBM filtered into the practice and was interpreted through their shared values and practice identity. This formulated their macro prescribing policy. These discussions and information would help inform their prescribing mindline development. Informal conversations about individual patients and complex prescribing decisions also helped share prescribing knowledge, experience and values. As a result the GPs came to have shared values and shared mindlines but retained a degree of personal interpretation based on their personal values and experiences. The experiences GPs gained at the micro level in consultations with patient's feedback and informed their values and decision-making at the macro prescribing level.

In conclusion, macro prescribing decision-making informed micro prescribing decision-making, and vice versa. Micro prescribing decision-making was more complex than macro prescribing due to the wider number of factors at play. GPs relied on prescribing mindlines which were based on tacit knowledge and experience to inform their prescribing decision-making at the micro level. These prescribing mindlines were iteratively developed through information and discussions at the macro and micro level and through interactions with patients.

